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**THE PRACTITIONER'S**  
**REFERENCE BOOK.**

**ADAPTED TO THE**

**USE OF THE PHYSICIAN, THE PHARMACIST,  
AND THE STUDENT.**

**BY**  
**RICHARD J. DUNGLISON, M.D.**

---

**PHILADELPHIA:**  
**LINDSAY AND BLAKISTON,**  
**1877.**

UNIV OF CALIF  
MEDICAL SCHOOL

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## PREFACE.

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FROM personal experience of the wants of the busy practitioner, the author is confident that a work of ready reference containing, in a compact and tangible shape, information of a purely practical character, will prove a desirable addition to his medical armamentarium. The physician is frequently at a loss to know in what direction to look, in order to procure such facts and hints as are here collected, some of which are widely scattered through voluminous professional treatises or the—in many instances—inaccessible pages of medical periodicals; while the other original suggestions and precepts offered for his guidance will, it is believed, meet many of his daily needs. The cordial indorsement of the objects of the work, with which the author has already been favored by leading and active members of the profession, induces him to indulge the hope that it may become an indispensable companion as a handy-book for every-day consultation.

RICHARD J. DUNGLISON.

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INTRODUCTION.

THE HIPPOCRATIC OATH.

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## THE HIPPOCRATIC OATH.

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THE following oath from the works of Hippocrates is so frequently referred to that the medical man of the present day should be made more familiar with its phraseology. As has been truly remarked, it exhibits the practitioners of medicine in a very remote age already formed into a regular corporation, bound by an oath to observe certain regulations, and having regular instructions in the art. The piece here quoted would seem to be an indenture between a physician and his pupil; and it is most honorable to the profession that so ancient a document pertaining to it, instead of displaying a narrow-minded and exclusive selfishness, inculcates a generous line of conduct, and enjoins an observance of the rules of propriety and of the laws of domestic morality.<sup>1</sup>

### THE OATH.

I swear by Apollo the physician, and Æsculapius, and Health, and All-heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath and this stipulation—to reckon him who taught me this Art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this Art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my

<sup>1</sup> Genuine Works of Hippocrates, Sydenham Society's edition, by Francis Adams, LL.D., ii. 775, London, 1849. The Oath was translated into English under the title of "The Protestation, which Hippocrates caused his scholars to make," by Peter Low, London, 1597.

teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practice my Art. I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work.<sup>1</sup> Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and further, from the seduction of females or males, of freemen and slaves. Whatever, in connection with my professional practice, or not in connection with it, I see or hear in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and the practice of the Art, respected by all men, in all times! But should I trespass and violate this Oath, may the reverse be my lot!

<sup>1</sup> "The circumstance that the novitiate in the art is interdicted from the practice of lithotomy shows that this operation in antiquity was always practised by a class of operators separated from the general profession, and that the regular members of the latter never meddled with it on any account. Hence, in the whole compass of ancient medical literature, there is not a single description of the operation by a person who himself had actually performed it. Avenzoar pronounced it to be an operation which no respectable physician would witness, and far less perform." (Adams, *loc. cit.*)

# **GENERAL INFORMATION FOR THE PRACTITIONER.**

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**(WEIGHTS AND MEASURES, SOLUBILITIES,  
ABBREVIATIONS, ETC.)**

**( 21 )**





## WEIGHTS AND MEASURES.

---

THE study of Weights and Measures has now become one of the necessities as well as one of the accomplishments of the day. Those in common use are generally sufficiently well known for the ordinary purposes of the practitioner; but the day is not far distant when the French system will be so frequently employed, as the most convenient international standard, that the physician must be able to interpret it understandingly, if he wishes to keep abreast of the times in which he lives.<sup>1</sup>

### Weights and Measures of the United States Pharmacopœia.

One Pound,	℔	=	12 Ounces	=	5,760 Grains.
One Ounce,	℥	=	8 Drachms	=	480 Grains.
One Drachm,	ʒ	=	3 Scruples	=	60 Grains.
One Scruple,	ʒ	.	.	.	20 Grains.
One Grain,	gr.	.	.	.	1 Grain.
One Gallon,	C	=	8 Pints	=	61,440 Minims.
One Pint,	O	=	16 Fluidounces	=	7,680 Minims.
One Fluidounce,	℥	=	8 Fluidrachms	=	480 Minims.
One Fluidrachm,	ʒ	.	.	.	60 Minims.
One Minim,	℥	.	.	.	1 Minim.

<sup>1</sup> The tables of weights and measures here given are almost wholly based on those published in the last edition (1873) of the U. S. Pharmacopœia.

### Relation of Weights and Measures of the U. S. Pharmacopœia to each other.

*In distilled water at a temperature of 60°.*

One Pound	=	0.7900031 Pint	=	6,067.2238 Minims.
One Ounce	=	1.0533376 Fluidounces	=	505.6019 Minims.
One Drachm	=	1.0533376 Fluidrachms	=	63.2002 Minims.
One Scruple	=	. . . . .	=	21.0667 Minims.
One Grain	=	. . . . .	=	1.0533 Minims.
One Gallon	=	10.1265427 Pounds	=	58,328.8862 Grains.
One Pint	=	1.2658178 Pounds	=	7,291.1107 Grains.
One Fluidounce	=	0.9493633 Ounce	=	455.6944 Grains.
One Fluidrachm	=	0.9493633 Drachm	=	56.9618 Grains.
One Minim	=	. . . . .	=	0.9493 Grain.

### Relation of Measures of the U. S. Pharmacopœia to Cubic Measure.

One Gallon	=	231.	Cubic Inches.
One Pint	=	28.875	Cubic Inches.
One Fluidounce	=	1.80468	Cubic Inches.
One Fluidrachm	=	0.22558	Cubic Inch.
One Minim	=	0.00375	Cubic Inch.

### Weights and Measures of the Metrical System.

The metric or metrical system is intended to secure uniformity throughout the world in all measurements of length, weight, and capacity. The units selected, the *Metre*, *Gramme*, and *Litre*, are defined in the following tables. As the great majority of practitioners regard the metric system as one of very recent introduction, it will be appropriate here to give a short sketch of its history, showing that, though only now becoming popularized in different countries of the world, it has been for many years a subject of agitation.<sup>1</sup>

<sup>1</sup> This historical description and explanation of the metric system is taken from *Photographic Mosaics*, Philadelphia, 1877, article, *Metric System*, by H. A. Pintard.

This system of weights and measures was first adopted in France. In the absence of any other natural standard it was determined, at the period of the first Revolution, to adopt an aliquot part of the terrestrial meridian; and in 1799 a provisional measure was adopted, supposed to be the ten millionth of the quadrant, or the forty millionth of the whole circumference measured over the poles. A commission of the Academy of Sciences, consisting of five of the most eminent mathematicians of Europe—Borda, Lagrange, Laplace, Monge, and Condorcet—were subsequently appointed, under a decree of the Constituent Assembly, to report upon the selection of a natural standard, and Delambre and Méchain were selected to measure an arc of the meridian between the parallel of Dunkirk and Barcelona. This labor was begun at the most agitated period of the Revolution, and accomplished only after many difficulties and dangers, as the astronomers and geometricians who carried on the operations were frequently molested, being taken for spies or enemies of France. The result was a wonderful approximation of the true length, the error being only about  $\frac{1}{80000}$  of the length, or less in a single metre than  $\frac{1}{80000}$  of an inch. By means of the arc of the meridian measured between Dunkirk and Barcelona, and of the arc measured in Peru, in 1736, by Bouguer and La Condamine, the length of the quarter of the meridian, or the distance from the pole to the equator, was calculated. This length was then divided into ten millions of equal parts, and one of these parts was taken for the unit of length, and called a metre, from the Greek word μέτρον (a measure). The length of the metre as thus fixed is equal to 3.2808992 English feet, or very nearly 39.37079 English inches. From this unit of linear measure are derived all measures of length, surface, and solidity. The unit of long measure is therefore the *metre*,

and from it is derived land measure, by calling 100 square metres an *are*. The are equals 3.955 English perches.

Liquid measure is obtained by making the unit or standard a *litre*, equal in capacity to a cubic decimetre = 0.2617 English gallon; dry measure, by making the standard a *hectolitre* = 2 bushels and 3.35 pecks; while for solid measure the standard is a *stere*, equal to a cubic metre = 35.317 cubic feet English. Lastly, to complete the series, *weight* is allied to the metre, by making the kilogramme to correspond with the contents of a cubic vessel of distilled water at the temperature of 4° C., or slightly above melting ice, the side of which cube is the *tenth* part of a metre (the decimetre), and the gramme to answer to the contents of a cubic vessel, the side of which is the *hundredth* part of the metre (the centimetre); for the contents of all cubic vessels are to each other in a triplicate ratio of their sides (Euclid, 33, xi.). All these units, by the prefixes, deca, deci, hecto, milli, etc., become applicable to any weights and measures, and, as the multiple of 10 connects all the larger and smaller measures, the whole becomes susceptible of decimal computation. No system of metrology hitherto invented can compare with this of the French in a scientific point of view, whilst its convenience for the purposes of commerce cannot fail to obtain its adoption by all civilized nations. The system was declared obligatory in France after November 2, 1801, and it has since been adopted in Spain, Belgium, Portugal, Holland, Greece, Sweden, Mexico, Brazil, and in 1868 was made compulsory in the German Empire. It was also legalized in Great Britain in 1864, and in 1866 an act was adopted by the Congress of the United States, making it lawful, after the passage of the act, throughout the United States, to employ the weights and measures of the metric system. Another act authorizes in post-offices the use of

weights of the denomination of grammes. The decimal system is now employed almost to the exclusion of others in science, and the United States Coast Survey has adopted it in its work. As all the formulæ published in Continental journals are based on the metric system, the following tables will prove of value to those who may have occasion to use the processes of their foreign associates.

In order to express the decimal proportions, the following prefixes are used:—

*Subdivision.*

Latin	{	Milli (from Millesimus), meaning a thousandth.	
		Centi ( " Centesimus),	" a hundredth.
		Deci ( " Decimus)	" a tenth.

*Multiples.*

Greek	{	Deca,	. Ten.
		Hecto,	. One hundred.
		Kilo,	. One thousand.
		Myria,	. Ten thousand.

It may assist the memory to observe that the terms for multiplying are Greek, and those for dividing, Latin.

*Measures of Length.*

One Myriametre	=	10,000 Metres.
One Kilometre	=	1,000 Metres.
One Hectometre	=	100 Metres.
One Decametre	=	10 Metres.
One METRE <sup>1</sup>	=	the ten millionth part of a quarter of the meridian of the earth.
One Decimetre	=	the tenth part of one Metre, or 0.1 Metre.
One Centimetre	=	the hundredth part of one Metre, or 0.01 Metre.
One Millimetre	=	the thousandth part of one Metre, or 0.001 Metre.

<sup>1</sup> The unit of length.

*Weights.*

One Myriagramme	= 10,000 Grammes.
One Kilogramme	= 1,000 Grammes.
One Hectogramme	= 100 Grammes.
One Decagramme	= 10 Grammes.
One GRAMME <sup>1</sup>	= the weight of a cubic centimetre of water at its maximum density, 4° C.
One Decigramme	= the tenth part of one Gramme, or 0.1 Gramme.
One Centigramme	= the hundredth part of one Gramme, or 0.01 Gramme.
One Milligramme	= the thousandth part of one Gramme, or 0.001 Gramme.

*Measures of Capacity.*

One Myrialitre	= 10 cubic Metres, or the measure of 10 Milliers of water.
One Kilolitre	= 1 cubic Metre, or the measure of 1 Millier of water.
One Hectolitre	= 100 cubic Decimetres, or the measure of 1 Quintal of water.
One Decalitre	= 10 cubic Decimetres, or the measure of 1 Myriagramme of water.
One LITRE <sup>2</sup>	= 1 cubic Decimetre, or the measure of 1 Kilogramme of water.
One Decilitre	= 100 cubic Centimetres, or the measure of 1 Hectogramme of water.
One Centilitre	= 10 cubic Centimetres, or the measure of 1 Decigramme of water.
One Millilitre	= 1 cubic Centimetre, or the measure of 1 Gramme of water.

**Relation of Weights of the U. S. Pharmacopœia to Metrical Weights.**

A comparison between the metric system and that adopted in our own Pharmacopœia may also be made, exhibiting at a glance the convertibility of one into the other. It is not probable that the whole of the French system will ever come into common use; in other words, that the refinement of decimal division will ever be closely followed in the writing of prescriptions. If the prescriber

<sup>1</sup> The unit of weight.<sup>2</sup> The unit of capacity.

will restrict himself to the use of the gramme and the centigramme, or the gramme alone, to express integral and fractional quantities approximately, he will avoid the apparent confusion that seems to attend the employment of the decimal system to its minutest ramifications.

*Fractions of a Grain in Milligrammes.*

Grain.	Milligrammes.	Grain.	Milligrammes.
$\frac{1}{10}$	= 1.012	$\frac{1}{15}$	= 4.049
$\frac{1}{20}$	= 1.079	$\frac{1}{15}$	= 4.319
$\frac{1}{30}$	= 1.295	$\frac{1}{12}$	= 5.399
$\frac{1}{40}$	= 1.349	$\frac{1}{10}$	= 6.479
$\frac{1}{50}$	= 1.619	$\frac{1}{8}$	= 8.098
$\frac{1}{60}$	= 1.799	$\frac{1}{6}$	= 10.798
$\frac{1}{80}$	= 2.159	$\frac{1}{5}$	= 12.958
$\frac{1}{100}$	= 2.591	$\frac{1}{4}$	= 16.197
$\frac{1}{125}$	= 2.699	$\frac{1}{3}$	= 21.597
$\frac{1}{150}$	= 3.239	$\frac{1}{2}$	= 32.395

*Grains in Equivalent Metrical Weights.*

Grains.	Centigrammes.	Grains.	Grammes.
1	= 6.479	16	= 1.036
	Decigrammes.	20	= 1.295
2	= 1.295	24	= 1.555
3	= 1.943	25	= 1.619
4	= 2.591	30	= 1.943
5	= 3.239	40	= 2.591
6	= 3.887	50	= 3.239
7	= 4.535	60	= 3.887
8	= 5.183		
9	= 5.831		
10	= 6.479		
12	= 7.775		
15	= 9.718		

*Drachms, Ounces, and Pounds in Equivalent Metrical Weights.*

Drachms.	Grammes.	Ounces.	Hectogrammes.
1	= 3.887	4	= 1.2441
2	= 7.775	5	= 1.5551
	Decagrammes.	6	= 1.8661
3	= 1.166	7	= 2.1772
4	= 1.555	8	= 2.4882
5	= 1.943	9	= 2.7992
6	= 2.332	10	= 3.1103
7	= 2.721	11	= 3.4213
Ounces.		Pounds.	
1	= 3.1103	1	= 3.7324
2	= 6.2206	2	= 7.4648
3	= 9.3309		Kilogrammes.
		3	= 1.1197



**Relation of Metrical Weights to Weights of the U. S.  
Pharmacopœia.**

Metrical weights.	Exact equiv. in grs.	Approx. equiv. in grs.	Metrical weights. Grammes.	Exact equivalents in grains.	Approximate equivalents, Troy weight.
<b>Milligrammes.</b>			1 =	15.434	gr. xv.
1 =	.0154	$\frac{1}{65}$	2 =	30.868	3ss.
2 =	.0308	$\frac{1}{32}$	3 =	46.302	℥ij.
3 =	.0463	$\frac{1}{21}$	4 =	61.736	3i.
4 =	.0617	$\frac{1}{16}$	5 =	77.170	℥iv.
5 =	.0771	$\frac{1}{13}$	6 =	92.604	3iss.
6 =	.0926	$\frac{1}{11}$	7 =	108.038	3vss.
7 =	.1080	$\frac{1}{9}$	8 =	123.472	3ij.
8 =	.1234	$\frac{1}{8}$	9 =	138.906	℥vij.
9 =	.1389	$\frac{1}{7}$	<b>Decagrammes.</b>		
<b>Centigrammes.</b>			1 =	154.340	3liiss.
1 =	.1543	$\frac{1}{6}$	2 =	308.680	3v.
2 =	.3086	$\frac{1}{3}$	3 =	463.020	3viiss.
3 =	.4630	$\frac{1}{2}$	4 =	617.360	3x.
4 =	.6173	$\frac{1}{16}$	5 =	771.701	3xij.
5 =	.7717	$\frac{1}{13}$	6 =	926.041	3xv.
6 =	.9260	$\frac{1}{10}$	7 =	1,080.381	3xviij.
7 =	1.0803	1	8 =	1,234.721	3xx.
8 =	1.2347	1 $\frac{1}{2}$	9 =	1,389.062	3xxij.
9 =	1.3890	1 $\frac{1}{3}$	<b>Hectogrammes.</b>		
<b>Decigrammes.</b>			1 =	1,543.402	3iiij ℥v.
1 =	1.543	1 $\frac{1}{2}$	2 =	3,086.804	3vj 3iiij.
2 =	3.086	3	3 =	4,630.206	3ix 3v.
3 =	4.630	4 $\frac{1}{2}$	4 =	6,173.609	℥i 3vij.
4 =	6.173	6	5 =	7,717.011	℥i 3iv.
5 =	7.717	7 $\frac{1}{2}$	6 =	9,260.413	℥i 3viij.
6 =	9.260	9	7 =	10,803.816	℥i 3x 3iv.
7 =	10.803	11	8 =	12,347.218	℥ij 3i 3v.
8 =	12.347	12 $\frac{1}{2}$	9 =	13,890.620	℥ij 3v.
9 =	13.890	14	<b>Kilogramme.</b>		
			1 =	15,434.023	℥ij 3viij.
			<b>Myriagramme.</b>		
			1 =	154,340.23	{ ℥xxvi. 3ix 3iv.

**Relation of Measures of the U. S. Pharmacopœia to Metrical Measures.**

One Gallon	=	3.785 Litres.
One Pint	=	4.732 Decilitres.
One Fluidounce	=	2.957 Centilitres.
One Fluidrachm	=	3.697 Millilitres.
One Minim	=	0.061 Millilitre.

**Relation of Metrical Measures to Measures of the U. S.  
Pharmacopœia.**

One Myrialitre	=	2641.9	Gallons.
One Kilolitre	=	264.19	"
One Hectolitre	=	26.419	"
One Decalitre	=	2.641	"
One Litre	=	2.113	Pints.
One Decilitre	=	3.381	Fluidounces.
One Centilitre	=	2.705	Fluidrachms.
One Millilitre (Cubic centimetre)	=	16.231	Minims.

**Approximate Conversion of Ordinary Measures into Gramme  
Weights (Metric System).**

As a matter of convenience in the writing of prescriptions containing fluid ingredients, the following table will be found of considerable importance for reference. As will be seen, it is arranged to include the estimated valuation, in the metric system, of menstrua or fluids of different densities, in quantities varying from a minim to four fluidounces. It forms a fitting sequel to the tables of weights and measures already given:—

*Approximate Conversion of Measures into Gramme Weights.<sup>1</sup>*

Apothecaries' measure. Minims.	GRAMMES FOR LIQUIDS.		
	Lighter than water. <sup>2</sup>	Of the sp. gr. of water. <sup>3</sup>	Heavier than water. <sup>4</sup>
1 . . . . .	.055	.06	.08
2 . . . . .	.10	.12	.15
3 . . . . .	.16	.18	.24
4 . . . . .	.22	.24	.32
5 . . . . .	.28	.30	.40
6 . . . . .	.32	.36	.48
7 . . . . .	.38	.42	.55

<sup>1</sup> Amer. Journal of Pharmacy, Feb. 1877, p. 92, by Prof. J. M. Maisch, in continuation of an article in the same number, p. 49, chiefly in defence of the expression of liquid preparations by metric weights.

<sup>2</sup> Including spirits, tinctures prepared with alcohol, fixed and volatile oils.

<sup>3</sup> Including waters, fluid extracts, and tinctures prepared with diluted alcohol.

<sup>4</sup> Including glycerine and the syrups.

Apothecaries' measure. Minims.	GRAMMES FOR LIQUIDS.		
	Lighter than water.	Of the sp. gr. of water.	Heavier than water.
8 . . . . .	.45	.50	.65
9 . . . . .	.50	.55	.73
10 . . . . .	.55	.60	.80
12 . . . . .	.65	.72	.96
14 . . . . .	.76	.85	1.12
15 . . . . .	.80	.90	1.20
16 . . . . .	.90	1.00	1.32
20 . . . . .	1.12	1.25	1.60
25 . . . . .	1.40	1.55	2.00
30 . . . . .	1.70	1.90	2.50
35 . . . . .	2.00	2.20	2.90
40 . . . . .	2.25	2.50	3.30
48 . . . . .	2.70	3.00	4.00
50 . . . . .	2.80	3.12	4.15
60 (f℥j) . . . . .	3.40	3.75	5.00
65 . . . . .	3.60	4.00	5.30
72 . . . . .	4.05	4.50	6.00
80 . . . . .	4.50	5.00	6.65
90 (f℥iss) . . . . .	5.10	5.60	7.50
96 . . . . .	5.40	6.00	8.00
100 . . . . .	5.60	6.25	8.30
120 (f℥ij) . . . . .	6.75	7.50	10.00
150 (f℥iiss) . . . . .	8.50	9.50	12.50
160 . . . . .	9.00	10.00	13.30
180 (f℥iij) . . . . .	10.10	11.25	15.00
210 (f℥iiiss) . . . . .	11.80	13.00	17.50
240 (f℥ss) . . . . .	13.50	15.00	20.00
f℥v . . . . .	16.90	18.75	25.00
f℥vss . . . . .	18.60	20.75	27.50
f℥vj . . . . .	20.25	22.50	30.00
f℥vij . . . . .	23.60	26.25	35.00
f℥viiij (f℥j) . . . . .	27.00	30.00	40.00
f℥ix . . . . .	30.40	33.75	45.00
f℥x . . . . .	33.75	37.50	50.00
f℥xij (f℥iiss) . . . . .	40.50	45.00	60.00
f℥xiv . . . . .	47.25	50.50	70.00
f℥ij . . . . .	54.00	60.00	80.00
f℥iiss . . . . .	67.50	75.00	100.00
f℥iij . . . . .	81.00	90.00	120.00
f℥iiiss . . . . .	94.50	105.00	140.00
f℥iv . . . . .	108.00	120.00	160.00

**Conversion of Cubic Centimetres into Fluidrachms.**

The following approximate table is based on the fact that a millilitre, or a cubic centimetre, is the measure of one gramme of water. To assist in the conversion of cubic centimetres into fluidrachms and minims, the statement here given has been carefully prepared. The value of a millilitre or cubic centimetre (according to the U. S. Ph. 1873) is 16.231 minims.<sup>1</sup>

*Table for Converting Cubic Centimetres into Fluidrachms.*

Cubic Centimetres.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
	dr. m.	dr. m.	dr. m.	dr. m.	dr. m.	dr. m.	dr. m.	dr. m.	dr. m.	dr. m.
0	0	0 16	0 32	0 49	1 5	1 21	1 37	1 53	2 10	2 26
10	2 42	2 58	3 15	3 31	3 47	4 3	4 19	4 36	4 52	5 8
20	5 24	5 41	5 57	6 13	6 29	6 46	7 2	7 18	7 34	7 51
30	8 7	8 23	8 39	8 56	9 12	9 28	9 44	10	10 17	10 33
40	10 49	11 5	11 22	11 38	11 54	12 10	12 27	12 43	12 59	13 15
50	13 31	13 48	14 4	14 20	14 36	14 53	15 9	15 25	15 41	15 58
60	16 14	16 30	16 46	17 2	17 19	17 35	17 51	18 7	18 24	18 40
70	18 56	19 12	19 28	19 44	20 1	20 17	20 34	20 50	21 6	21 22
80	21 38	21 55	22 11	22 27	22 43	23	23 16	23 32	23 48	24 4
90	24 20	24 37	24 53	25 9	25 26	25 42	25 58	26 14	26 31	26 47

100 cubic centimetres are equal to 27 fluidrachms 3 minims, or 3 fluidounces 3 fluidrachms and 3 minims.

<sup>1</sup> Alfred B. Taylor, *Med. and Surg. Reporter*, Feb. 24, 1877, suggests that, as the cubic centimetre, or gramme of distilled water, represents nearly  $16\frac{1}{4}$  minims, and differs but slightly from the one-fourth part of a fluidrachm, or 15 minims, it might very appropriately and suggestively be designated a "fluigram," being required only for medicinal uses, and being directly related to the assumed standard weight of pharmacy. Four of these "fluigrams" represent a capacity of 64.9 minims, or not quite 5 minims more than our fluidrachm, which, translated into the "vulgate," signifies 5 drops over the average teaspoonful.

### Number of Drops in a Fluidrachm.

The importance of becoming familiar with the relation of the drop to the fluidrachm is at once evident by an inspection of the following table. The wide range between the smallest number of drops (44) in one of the fluids cited, and the largest number (276), suggests to the practitioner the exercise of very great caution in the administration of medicines calculated *guttatim*. In writing prescriptions based on an estimate of a certain number of drops to each dose, serious error might be committed in the employment of a large number of the potent articles here enumerated, by a blind adherence to the view that any average number of drops is equivalent to a fluidrachm. The only true course for the practitioner is to make a special study of these agents, as offered in some such table as that here furnished, and to endeavor to fix in his mind the relative tenuity of the liquid articles he may desire to prescribe.

		From bottles. <sup>1</sup>	From minim measure.
Acetum colchici . . . . .		75	
“ destillatum . . . . .		78	
“ opii . . . . .		90	69
“ scillæ . . . . .		78	
Acidum aceticum . . . . .		73	102
“ hydrocyanicum . . . . .		53	52
“ “ dilutum . . . . .		45	
“ muriaticum . . . . .		54	
“ nitricum . . . . .		84	
“ “ dilutum . . . . .		62	44
“ sulphuricum . . . . .		90	
“ “ aromaticum . . . . .		116	148
“ “ dilutum . . . . .		54	49

<sup>1</sup> According to measurements by Durand, Procter, Parrish, Farquharson, and others. Some of these measurements are from ordinary bottles, others from Oj tincture bottles. Such a table is merely an approximate one, not absolutely exact under all circumstances.

	From bottles.	From minim measure.
Æther . . . . .	150	
Alcohol . . . . .	118	143
“ dilutum . . . . .	98	124
Aqua . . . . .	64	46
“ ammoniæ . . . . .	49	62
Creasotum . . . . .	91	95
Chloroformum . . . . .	180	276
Glycerina . . . . .	55	85
Liquor iodinii compositus . . . . .	75	75
“ hydrargyri et arsenici iodidi . . . . .	52	52
“ potassii arsenitis . . . . .	60	63
Oleum amygdalæ dulcis . . . . .	120	
“ anisi . . . . .	85	86
“ carui . . . . .	106	108
“ caryophylli . . . . .	103	103
“ chenopodii . . . . .	97	100
“ cinnamomi . . . . .	100	102
“ cubebæ . . . . .	86	96
“ fœniculi . . . . .	103	103
“ gaultheriæ . . . . .	102	101
“ menthæ piperitæ . . . . .	103	109
“ “ viridis . . . . .	89	94
“ olivæ . . . . .	76	99
“ ricini . . . . .	55	
“ rosmarini . . . . .	104	105
“ sabinæ . . . . .	102	108
“ sassafras . . . . .	102	100
“ terebinthinæ . . . . .	110	
“ tiglli . . . . .	80	92
Spiritus ætheris rosi . . . . .	90	148
“ “ compositus . . . . .	90	140
Syrupus acaciæ . . . . .	58	56
“ scillæ . . . . .	85	88
Tinctura aconiti . . . . .	118	130
“ assafœtidæ . . . . .	120	
“ digitalis . . . . .	120	114
“ ferri chloridi . . . . .	106	151
“ guaiaci . . . . .	120	
“ iodinii . . . . .	144	113
“ opii . . . . .	147	106

	From bottles.	From minim measure.
Tinctura opii camphorata . . . . .	110	95
“ tolu . . . . .	138	120
Vinum antimonii . . . . .	87	62
“ colchici . . . . .	75	
“ opii . . . . .	92	78

As this table does not include a number of liquid preparations, which are also in common use, it is desirable that the practitioner should possess general rules for his guidance:—

1. Liquids which contain a small proportion of water afford a small drop; while, on the contrary, liquids containing a large quantity of water furnish a large drop. For instance, concentrated acids, ethers, rectified alcohol, fixed and essential oils, etc., which contain but a very small proportion of water, yield a smaller drop than diluted acids, weak alcohol, wine, vinegar, etc.

2. Amongst the liquids containing a large proportion of water, those which are not charged with remedial substances give a larger and heavier drop than these same liquids containing extraneous bodies in solution. Thus, weak alcohol, wine, vinegar and water furnish a larger and heavier drop than the tinctures prepared from them.<sup>1</sup>

#### Relative Value of the Drop and Minim.

The view, so long entertained and even loosely taught, that the *minim* was usually to be accepted as synonymous with the *drop*, has been wholly abandoned in the light of modern experimental research. Sixty minims always, of course, constitute a fluidrachm, but sixty drops are seldom equivalent to the same measurement, as may be deduced from the table just given. The fact becomes of vital importance in the calculation of quantities in prescription-

<sup>1</sup> E. Durand, Journal Phila. Col. of Pharmacy, i. 168.

writing, as in ignorance of this relative valuation of the drop a larger dose may be ordered than is desired by the practitioner, or than the welfare of the patient demands.

### Approximate Measurements.

With the varying dimensions of teaspoons, tablespoons, wineglasses, etc., depending on the caprices of fashion or the fanciful manipulation of the silversmith or the glass-maker, no absolutely exact quantity can be fixed upon as the definite contents of any one of these articles. Custom, not law, has decided only approximately the measurement of each, and the practitioner can merely indicate, in a general way, the dose which he wishes to be administered to his patient, although the latter's modern teaspoon may sometimes be nearly as large again as the old-fashioned ones of his ancestors. A wineglassful is a very uncertain quantity, but when such a dose is employed, it is usually that of an infusion or decoction, which does not require absolutely exact measurement of the dose. Indeed this quantity is comparatively seldom prescribed in the United States, not nearly so often as by some of our transatlantic brethren.

Teaspoonful . . . .	about 1 fluidrachm.
Dessertspoonful . . . .	" 2 fluidrachms.
Tablespoonful . . . .	" 4 "
Wineglassful . . . .	" 1½ to 2 fluidounces.
Teacupful . . . .	" 4 "
Breakfastcupful . . . .	" 6 to 8 "
Tumblerful . . . .	" 8 to 10 "
Thimbleful . . . .	" ¾ fluidrachm.
Pinch (of leaves or flowers), .	" 1 drachm, Troy.
Handful . . . .	" 10 drachms, Troy.



## SOLUBILITY OF MEDICINES IN WATER, ALCOHOL, ETHER, GLYCERINE, ETC.

The practitioner is hardly sufficiently armed with a proper knowledge of the art of prescribing who is not informed as to the solubility of the substances which he is about to employ. The young prescriber, especially, is often embarrassed as to the effective solution of the articles he may wish to introduce into his prescription; shall it be an alcoholic or an aqueous solution, and, if so, is the substance soluble in one or the other, and are the other ingredients miscible with it?

Such are the questions he often asks himself, and the accompanying table, which includes all the prominent remedies, will supply the answer. Even those who are experienced prescribers and dispensers will find such a summary valuable for daily use. The table has been carefully prepared by the author from results arrived at in the researches of various undoubted authorities,<sup>1</sup> and offers the advantage of immediate and ready reference at the moment it is needed.

For much of the information here conveyed the practitioner might search his text-books in vain. The works on chemistry proper, of course, take no cognizance of the solubility of purely medicinal agents, and medico-chemical treatises content themselves with only a brief mention of the solvent powers of such a useful excipient as glycerine. There are many opportunities, indeed, for

<sup>1</sup> Pharmacopœia of the United States, 1873; United States Dispensatory, 14th edition, 1877; Frank H. Storer, *First Outlines of a Dictionary of Solubilities of Chemical Substances*, 1864; etc.

the employment of these solutions in glycerine, both externally and internally, which are neglected from the usual inaccessibility of such information.

No allusion is made in the following table of solubilities to such articles of the *materia medica* as give up only a portion of their virtues to alcohol, water, etc., leaving undissolved a considerable amount of residue. We shall allude to preparations formed in this way, such as tinctures, in another place. (See *Pharmacopœial Groups*.) Nor is mention made of the solubility of substances in acids, when such solution is really nothing less than actual decomposition or disintegration, sometimes amounting to the formation of a salt with totally different properties. The solvents referred to in the table are those which are of constantly recurring interest to the physician and the pharmacist, being those most commonly resorted to by the former in prescribing, and by the latter in compounding. The solvent powers of these menstrua—water, alcohol, ether, glycerine—are exerted in a discriminating way, for which we can offer no satisfactory explanation, some substances being soluble either in water or alcohol, while others of a somewhat similar chemical nature are insoluble in one or both of these fluids. Very few articles employed by the practitioner are wholly insoluble.

Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Acacia . . . . .	Soluble.	Soluble.	Insoluble.	Insoluble.	Insoluble in oils; soluble in dilute acids.
Acidum arseniosum . .	At 55°, a pint dissolves 293 grains of transparent variety; 92 of the opaque.	Dissolves 807 grains of both varieties.	.....	.....	100 parts of glycerine dissolve 20 parts.
“ benzoicum . .	Soluble in 200 parts.	Soluble in 24 parts.	Soluble.	.....	Soluble in fixed oils and alkaline solutions. 100 parts of glycerine dissolve 10 parts.
“ carbolieum . .	Soluble in 20 to 33 parts, according to purity.	.....	Soluble.	Soluble.	Soluble in acetic acid, in glycerine, in fixed and volatile oils.
“ citricum . . . . .	Soluble in $\frac{1}{3}$ its weight.	Soluble in $\frac{1}{3}$ its weight.	Soluble.	Insoluble.	Soluble in glycerine, gr. xl. to 5j.
“ gallicum . . . . .	Soluble in 100 parts.	Soluble in 3 parts.	Very soluble.	Slightly soluble.	
“ lacticum . . . . .	Soluble.	.....	Soluble.	Soluble.	
“ oxalicum . . . . .	Soluble in 9 times its weight.	Soluble in its weight.	Moderately soluble.	Solub. with difficulty.	
“ tannicum . . . . .	Very soluble.	.....	Soluble.	Soluble.	Insoluble in fixed and volatile oils. 100 parts of glycerine dissolve 50 parts.
“ salicylicum . . . .	Soluble in 600 parts.	Soluble in 150 parts.	Soluble.	Soluble.	
“ tartaricum . . . .	Soluble in rather less than its weight.	Soluble in $\frac{1}{3}$ its weight.	Soluble.	Insoluble.	

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Acidum valerianicum . . . . .	Soluble in 30 parts.	...	Soluble.	Soluble.	Soluble in strong acetic acid.
Aconitia . . . . .	Soluble in 150 parts.	Soluble in 50 parts.	Readily soluble.	Readily soluble.	Soluble in chloroform.
Alcohol amylicum . . . . .	Sparingly soluble.	.....	Soluble.	Soluble.	Soluble in essential oils.
Aloes . . . . .	Partially soluble.	Soluble.	Soluble.	.....	100 parts of glycerine dissolve 40 parts.
Alumen . . . . .	Soluble in 14 to 15 times its weight.	Soluble in its weight.	Insoluble.	.....	100 parts of glycerine dissolve 40 parts.
Ammonii benzoas . . . . .	Soluble.	.....	Soluble.	.....	100 parts of glycerine dissolve 40 parts.
“ brouidum . . . . .	Soluble in 1.5 parts.	.....	Soluble in 13 parts.	.....	100 parts of glycerine dissolve 20 parts.
“ carbonas . . . . .	Soluble in 4 times its weight.	Decomposed by boiling water.	Abundantly soluble in dilute alcohol, and in heated alcohol, sp. gr. 0.836.	.....	100 parts of glycerine dissolve 20 parts.
“ chloridum . . . . .	Soluble in 3 parts.	Soluble in one part.	Moderately soluble in rectified spirit; sparingly so in absolute alcohol.	Insoluble.	100 parts of glycerine dissolve 20 parts.
“ iodidum . . . . .	Very soluble.	.....	Very soluble.	.....	Partly soluble in vinegar and alkaline solutions.
“ valerianas . . . . .	Very soluble.	.....	Very soluble.	Partly soluble.	Partly soluble in vinegar and alkaline solutions.
Ammoniacum . . . . .	Partially soluble.	.....	Partly soluble.	Partly soluble.	Partly soluble in vinegar and alkaline solutions.
Amyl nitris . . . . .	Insoluble.	.....	Soluble.	Insoluble.	Partly soluble in vinegar and alkaline solutions.
Amylum . . . . .	Insoluble.	Soluble.	Insoluble.	Insoluble.	Partly soluble in vinegar and alkaline solutions.

## Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.—Continued.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Antimonii et potassii tartras . . . . .	Soluble in 15 parts at 60°.	Soluble in 2 or 3 parts.	Insoluble; partially soluble in proof spirit.	.....	100 parts of glycerine dissolve 5.5 parts.
Antimonium sulphuratum	Insoluble.	.....	Soluble.	Soluble.	Soluble in glycerine.
Argenti nitras . . . .	Soluble in its own weight; when pure, wholly dissolved in distilled water.	.....	Soluble in boiling alcohol.		
“ oxidum . . . .	Slightly soluble.	.....	Soluble in 8 parts.	Soluble in 25 parts.	Soluble in 50 parts of glycerine; in rather more than 3 parts of chloroform; 100 parts of olive oil dissolve 2.62 parts.
Arsenici iodidum . . .	Very soluble.	.....	Very soluble.	Insoluble.	Insoluble in chloroform. 100 parts of glycerine dissolve 33 parts.
Atropia . . . . .	Soluble in 300 parts at 60°.	.....	Soluble.		
Atropiæ sulphas . . .	Very soluble.	.....			
Balsamum toltutanum . .	.....	.....			
Barii chloridum . . . .	Soluble in 2½ times its weight.	Soluble in its own weight.	In almost insoluble in absolute alcohol; soluble in rectified spirit.	Insoluble.	
Bismuthi subcarbonas .	Insoluble.				

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Bismuthi subnitras . .	Very slightly soluble.	.....	.....	.....	Soluble in strong acids and ammonia, sparingly so in fixed alkalies.
Brominium . . . .	Sparingly soluble.	.....	Moderately soluble.	Soluble.	
Brucia . . . . .	Soluble in 850 parts.	Soluble in 500 parts.	Very soluble.	Insoluble.	Insoluble in fixed oils; slightly soluble in volatile oils. 100 parts of glycerine dissolve 2.25 parts.
Cadmii iodidum . . .	Freely soluble.	.....	Freely soluble.	Sparingly soluble in boiling ether.	
“ sulphas . . . .	Very soluble.				
Caffeina . . . .	Soluble.	.....			
Calcii bromidum . . .	Soluble in twice its weight.	.....	Soluble.	Soluble.	
“ carbonas præcipitata . . . .	Insoluble.	.....	Insoluble.	Insoluble.	
“ chloridum . . . .	Very soluble.	.....	Soluble.		
“ hypophosphis . . .	Soluble in 6 parts.	.....	Slightly soluble in diluted alcohol.		
“ phosphas præcipitata . . . . .	Insoluble.		Insoluble in official alcohol.		

## Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.—Continued.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.
Calx . . . . .	Soluble in about 700 times its weight at 60°.	Soluble in about 1300 parts.	Almost insoluble.	Insoluble.
" chlorinata . . . . .	Partially soluble.	.....	Alcohol takes up 75 per cent. of its weight. 100 parts of alcohol, sp. gr. 0.806, dissolve 120 parts at 50° Fab. (Berzelius).	Soluble.
Camphor . . . . .	Triturated with water, latter dissolves only 1000th part.	.....	Soluble. Insoluble. Soluble in absolute alcohol.	Soluble. Insoluble.
" monobromated . . . . .	Insoluble.	.....	Soluble. Insoluble. Soluble in absolute alcohol.	Insoluble.
Cerri oxalas . . . . .	Insoluble.	.....	Soluble. Insoluble. Soluble in absolute alcohol.	Insoluble.
Chloral . . . . .	Soluble in its own weight of distilled water.	.....	Soluble. Insoluble. Soluble in absolute alcohol.	Insoluble.
Chloroformum . . . . .	Soluble in 100 parts.	.....	Soluble. Insoluble. Soluble in absolute alcohol.	Insoluble.
Cinchonia . . . . .	Almost insoluble.	Soluble in 2500 parts.	Soluble. Insoluble. Soluble in absolute alcohol.	Slightly soluble in fixed and volatile oils. 100 parts of glycerine dissolve 0.3 part
Cinchonix sulphas . . . . .	Soluble in 54 parts.	Moderately soluble.	Soluble. Insoluble. Soluble in absolute alcohol.	100 parts of glycerine dissolve 6.78 parts.

Soluble in fixed and volatile oils, strong acetic acid, and diluted mineral acids; extremely soluble in chloroform.

Insoluble in oil of turpentine, chloroform, bisulphide of carbon. Soluble in fixed oils.

Slightly soluble in fixed and volatile oils. 100 parts of glycerine dissolve 0.3 part

100 parts of glycerine dissolve 6.78 parts.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Cinchonidia . . . . .	Very sparingly soluble.	.....	Soluble.	Sparingly soluble.	Insoluble in alkaline solutions. Soluble in fixed and volatile oils and strong alkaline solutions. Soluble in naphtha and bisulphide of carbon.
Codeia . . . . .	Dissolves 1.26 per cent.	Dissolves 5.9 per c.	Soluble.	Soluble.	
Copaiba . . . . .	Insoluble.	.....	Soluble in absolute alcohol.	Soluble.	
Creasotum . . . . .	Forms two solutions: 1 part creasote, 80 water, and 1 part water, 10 creasote.	.....	Soluble.	Soluble.	
Creta preparata . . . . .	Insoluble.	.....	Insoluble.	Insoluble.	100 parts of glycerine dissolve 10 parts.
Cupri acetat . . . . .	Soluble in 14 parts.	.....	Soluble in 13 parts of boiling alcohol.	Insoluble.	
" subacetat . . . . .	Decomposed by water.	.....	Insoluble.	.....	100 parts of glycerine dissolve 30 parts.
" sulphat . . . . .	Soluble in 4 parts.	Soluble in 2 parts.	Insoluble.	.....	
Cuprum ammoniatum . . . . .	Soluble.	.....	Insoluble.	.....	Very soluble in chloroform.
Digitalinum . . . . .	Insoluble.	.....	Soluble in 12 parts of cold alcohol of 90 per cent.; in 6 parts boiling alcohol.	.....	
Ferri arsenias . . . . .	Insoluble.	.....	.....	.....	Dissolved by muriatic acid.
" bromidum . . . . .	Soluble.	.....	.....	.....	
" chloridum . . . . .	Soluble.	.....	Soluble.	Soluble.	



## Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.—Continued.

Name.	Cold water.	Bolling water.	Alcohol.	Ether.
Ferri citras . . . .	Abundantly but slowly soluble.	Soluble.		
" et ammonii citras .	Soluble.	.....	Almost insoluble.	
" " sulphas	Soluble in 1.5 parts at 60°.	Soluble in less than its weight.		
" " tartaras .	Slowly soluble.	.....	Insoluble.	Insoluble.
" " potassii " .	Soluble in 4 parts.	.....	Sparingly soluble.	.....
" " quiniæ citras .	Slowly soluble.	Soluble.	Insoluble in official alcohol.	Insoluble.
" " strychniæ " .	Very soluble.	.....	Insoluble.	Insoluble.
" ferrocyaniidum .	Insoluble.	.....	.....	.....
" hypophosphis .	Insoluble.	.....	Insoluble.	Soluble in hydrochloric acid.
" iodidum . . . .	Very soluble.	.....	Very soluble.	Soluble in glycerine.
" lactas . . . .	Soluble in 48 parts.	Soluble in 12 parts.	Almost insoluble.	100 parts of glycerine dissolve 16 parts.
" oxalas . . . .	Insoluble.	.....	.....	Soluble in acids.
" phosphas . . . .	Insoluble.	.....	.....	.....
" pyrophosphas . .	Freely soluble.	.....	.....	.....
" sulcarbonas . .	Insoluble.	.....	.....	.....
" sulphas . . . .	Soluble in twice its weight.	Soluble in $\frac{1}{3}$ its weight.	Insoluble.	100 parts of glycerine dissolve 25 parts.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
<i>Ferrum redactum</i> . . .	Insoluble.	Insoluble.	Insoluble.	Insoluble.	
<i>Galla</i> . . . . .	.....	Partially soluble.	Partially soluble.	Partially soluble.	
<i>Glycerina</i> . . . . .	Soluble.	.....	Soluble.	Insoluble.	
<i>Gutta-percha</i> . . . . .	Insoluble.	.....	Insoluble.	Imperfectly soluble by aid of heat.	Insoluble in alkaline solutions and in weak acids. Soluble in oil of turpentine, bisulphide of carbon, chloroform, and benzole.
<i>Hydrargyri chloridum corrosivum</i> . . . . .	Soluble in 16 parts.	Soluble in 3 parts.	Soluble in 2.3 parts of cold, in its own weight of boiling alcohol.	Soluble in 3 parts of ether.	Soluble in sulphuric, nitric, and muriatic acids. 100 parts of glycerine dissolve 7.5 parts.
<i>Hydrargyri chloridum imite</i> . . . . .	Insoluble.	.....	Insoluble.	Insoluble.	100 parts of glycerine dissolve 27 parts.
<i>Hydrargyri cyanidum</i> . . .	Soluble.	Soluble.	Sparingly soluble.	.....	
<i>Hydrargyri iodidum rubrum</i> . . . . .	Insoluble.	.....	Sparingly soluble.	Freely soluble.	Soluble in muriatic acid, solutions of iodide of potassium, chloride of sodium, etc.
<i>Hydrargyri iodidum viride</i>	Insoluble.	.....	Insoluble.	Insoluble.	

## Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.—Continued.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Hydrargyri oxidum rubrum . . . . .	1000 parts of water dissolve 0.62 part.	Soluble in 7000 parts.	Insoluble.	Insoluble.	
Hydrargyri oxidum flavum " sulphas flava .	Soluble in 2000 parts.	Soluble in 600 parts. ....	Insoluble		
" sulphuretum rubrum . . . . .	Insoluble.	.....	Insoluble.	Insoluble.	
Hydrargyrum ammoniatum . . . . .	Insoluble.	.....			
Hydrargyrum cum creta .	Insoluble.				
Ichthyocola . . . . .	.....	Soluble.	Insoluble.	...	Soluble in dilute acids and alkaline solutions.
Iodinium . . . . .	Soluble in 7000 times its weight.	.....	Soluble.	Very soluble.	100 parts of glycerine dissolve 1.9 parts. Soluble in chloroform.
Iodoformum . . . . .	Insoluble.	.....	Soluble.	Soluble.	Soluble in fixed and volatile oils.
Lithii carbonas . . . . .	Soluble in about 100 parts.	.....	Insoluble.	.....	Soluble in carbonic acid water.
" citras . . . . .	Soluble in 2.5 parts.				
Lupulina . . . . .	Water dissolves 5 per cent. of its weight.	.....	Soluble.	Almost insoluble.	
Magnesia . . . . .	Soluble in 5142 parts at 60°.	Soluble in 36,000 p'ts.			

Name.	Cold water.	Boiling water.	Alcohol.	Ether.
4 <i>Magnesiæ carbonas</i> . . .	Soluble in 2493 parts.	Soluble in 9000 parts of hot water.		
" <i>sulphas</i> . . .	At 32° F. 100 parts of water dissolve 25.76 parts of anhydrous salt, and nearly 0.86 part for every additional degree.	.....	Insoluble.	
<i>Manganesiæ sulphas</i> . .	When anhydrous, dissolved by 2 parts at 60°.	Soluble in its own weight.	Insoluble.	Insoluble.
<i>Manna</i> . . . . .	Soluble in 3 parts.	Soluble in its own weight.	Soluble.	
<i>Morphia</i> . . . . .	Nearly insoluble.	Soluble in rather less than 100 parts.	Slightly soluble in cold, freely in boiling, alcohol.	Soluble in fixed and volatile oils; insoluble in chloroform. 100 parts of glycerine dissolve 0.45 part.
<i>Morphiæ acetat</i> . . . .	Soluble when pure.	.....	Moderately soluble.	100 parts of glycerine dissolve 20 parts.
" <i>urias</i> . . . . .	Soluble in 16 parts at 60°.	Soluble in its own weight.	Soluble.	100 parts of glycerine dissolve 20 parts.
" <i>sulphas</i> . . . . .	Soluble in twice its weight.	.....	Soluble.	

## Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.—Continued.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	Soluble in solutions of the alkalis.
Myrrha . . . . .	Partially soluble.	.....	Partially soluble.	Partially soluble.	Soluble in solutions of the alkalis.
Oleum amygdalæ amaræ .	Slightly soluble.	.....	Soluble.	Soluble.	
" morrhua . . . . .	Dissolves 0.637 to 1.28 per cent. of different varieties.	.....	Dissolves 2.5 to 6 per cent. of different varieties.	Soluble.	
" olivæ . . . . .	Insoluble.	.....	Nearly insoluble.	Soluble in twice its volume.	Readily soluble in chloroform, benzine, and bisulphide of carbon.
" ricini . . . . .	Insoluble.	.....	Soluble in all proportions in cold absolute alcohol.	Soluble.	
			Alcohol, sp. gr. 0.8425 takes up about $\frac{1}{3}$ of its weight.		
" terebinthinæ . . . . .	Very slightly soluble.	.....	Moderately soluble.	Readily soluble.	Soluble in volatile oils.
" tiglli . . . . .	Insoluble.	....	Partially soluble.	Soluble.	Soluble in oil of turpentine.
Phosphorus . . . . .	Insoluble.	.....	Sparingly in anhydrous alcohol.	Sparingly soluble.	Sparingly soluble in the oils; abundantly so in bisulphide of carbon and chloroform. 100 parts of glycerine dissolve 0.20 part.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Piperina . . . . .	Insoluble.	Slightly soluble.	Soluble.	Soluble.	Soluble in acetic acid.
Plumbi acetat . . . . .	Soluble in 4 times its weight; soluble in distilled water.	.....	Soluble.	.....	100 parts of glycerine dissolve 20 parts.
" carbonas . . . . .	Almost insoluble.				
" iodidum . . . . .	Soluble in 1235 parts.	Soluble in 194 parts.	Soluble.		
" nitras . . . . .	Soluble in 7½ parts.	.....	Slightly soluble.		
Potassa . . . . .	Soluble in less than its weight.	.....	Readily soluble.	Soluble.	Readily soluble in glycerine.
Potassii acetat . . . . .	Soluble in half its weight.	.....	Soluble in twice its weight.		
" bicarbonas . . . . .	Soluble in 4 parts.	.....	Insoluble.		
" bitartaras . . . . .	Soluble in 184 parts.	Soluble in 18 parts.	Insoluble.		
" bromicium . . . . .	Very soluble.	.....	Slightly soluble.	.....	100 parts of glycerine dissolve 25 parts.
" carbonas . . . . .	Soluble in its own weight.	.....	Insoluble.		
" " pura . . . . .	Soluble in its own weight.	.....	Insoluble.		
" chloras . . . . .	Soluble in 16 parts at 60°.	Soluble in 2½ parts.	Slightly soluble.	.....	100 parts of glycerine dissolve 3.5 parts.
" citras . . . . .	Soluble.	.....	Insoluble.		
" cyanidum . . . . .	Very soluble.	.....	Moderately soluble.	.....	100 parts of glycerine dissolve 32 parts.

## Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.—Continued.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.
Potassii ferrocyanidum .	Soluble in 3 or 4 times its weight.	Soluble in its own weight.	Insoluble.	
“ hypophosphis .	Very soluble.	.....	Very soluble.	Insoluble.
“ iodidum . . .	Very soluble.	.....	Soluble in 5½ parts of alcohol, sp. gr. 0.85 at 55°.	.....
“ nitras . . .	Soluble in 4 or 5 times its weight.	Soluble in ½ of its weight.	Sparingly soluble in rectified spirit; insoluble in absolute alcohol.	Almost insoluble.
“ permanganas .	Soluble in 5 times its weight at ordinary temperatures.			
“ et sodii tartras .	Soluble.	Soluble in 5 times its weight.	Insoluble.	
“ sulphas . . .	Slowly soluble in 9½ times its weight.	Soluble in 9½ times less than 4 times its weight.	Insoluble.	.....
“ sulphis . . .	Soluble in an equal weight.			Soluble in glycerine.
“ sulphuretum . .	Soluble.	.....	Soluble	.....
				Soluble in glycerine.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Potassii tartaras . . . .	Soluble in its own weight.	Soluble in half weight.	Nearly insoluble.		
Quinia . . . . .	Soluble in 400 parts.	Soluble in 250 parts.	Soluble.	Soluble.	Soluble in fixed and volatile oils. 100 parts of glycerine dissolve $\frac{1}{2}$ part.
Quiniæ sulphas . . . .	Soluble in 740 parts at 54°.	Soluble in 30 parts.	Soluble in 60 parts, sp. gr. 0.835.	Almost insoluble.	Slightly soluble in cold glycerine; freely so in hot.
“ valerianas . . . .	Soluble in 110 parts.	Soluble in 40 parts.	Soluble in 6 parts of cold alcohol, and in an equal weight of boiling alcohol.	Soluble.	
Resina jalapæ . . . .	Insoluble.	.....	Soluble.	Partially soluble.	Insoluble in oil of turpentine.
“ podophylli . . . .	Insoluble.	.....	Soluble.	Partially soluble.	Soluble in alkaline solutions; insoluble in oil of turpentine.
“ scammonii . . . .	Insoluble.	.....	Very soluble; also in boiling proof spirit.	Very soluble.	
Saccharum . . . . .	Soluble in half its weight.	Very soluble.	Nearly insoluble in absolute alcohol; soluble in 4 times its weight of boiling alcohol, sp. gr. 0.83.	Insoluble.	



## Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.—Continued.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Saccharum lactis . . .	Slowly soluble in 6 parts.	Slowly soluble in 6 parts.	Slightly soluble.	Insoluble.	
Scammonium . . .	Partially soluble.	.....	Partially soluble; also in boiling dilute alcohol.	Partially soluble.	
Soda . . . . .	Soluble.	.....	Soluble.	Moderately soluble.	Soluble in glycerine.
Sodii acetat . . . . .	Soluble in 3 parts.	.....	Soluble in 24 parts.	.....	100 parts of glycerine dissolve 50 parts.
" arsenias . . . . .	Soluble in 2 parts.	.....	Insoluble.	.....	100 parts of glycerine dissolve 8 parts.
" bicarbonas . . . . .	Soluble in 13 parts.	Decomposed.	.....	.....	100 parts of glycerine dissolve 60 parts.
" boras . . . . .	Soluble in 12 times its weight.	Soluble in twice its weight.	Nearly insoluble.	.....	100 parts of glycerine dissolve 98 parts.
" bromidum . . . . .	Soluble.	.....	Sparingly soluble.	.....	
" carbonas . . . . .	100 parts dissolve 60 parts at 57°.	100 parts dissolve 445 parts at 219°.	Insoluble.	.....	
" chloridum . . . . .	At 54° water dissolves 36 per cent.	Dissolves 40 per cent.	100 parts of alcohol, sp. gr. 0.815, dissolve, at 59°, only 0.174 part.	.....	Soluble in glycerine.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.
Sodii hypophosphis . .	Very soluble.	.....	Very soluble in absolute alcohol.	Insoluble.
" hypophosphis . . .	Soluble in 1½ parts at 60°.	.....	Insoluble.	.....
" nitras . . . . .	Soluble in about twice its weight of water at 60°.	.....	Soluble in boiling alcohol.	Soluble in glycerine.
" phosphas . . . . .	Soluble in 4 parts.	Soluble in 2 parts.	Insoluble.	.....
" sulphas . . . . .	Soluble in 3 times its weight.	Soluble in its own weight.	Insoluble.	Soluble in glycerine.
" sulphis . . . . .	Soluble in 4 parts.	Soluble less than its weight.	Insoluble.	.....
" sulphocarbolas . .	Soluble.	.....	.....	.....
Strychnia . . . . .	Soluble in 6667 parts at 50°.	Soluble in 2000 parts.	Soluble in 387 parts official alcohol ap. gr. 0.835; more soluble in boiling alcohol; soluble in 179 parts of absolute alcohol.	Soluble in chloroform and volatile oils. 100 parts of olive oil dissolve 1 part. 100 parts of glycerine dissolve 0.25 part.
Strychnitz sulphas . .	Freely soluble.	.....	Sparsingly soluble.	Insoluble.
Sulphur præcipitatum .	Insoluble.	.....	Slightly soluble.	100 parts of glycerine dissolve 22.6 parts. Slightly soluble.

Solubility of Medicines in Water, Alcohol, Ether, Glycerine, etc.—Continued.

Name.	Cold water.	Boiling water.	Alcohol.	Ether.	
Sulphur sublimatum . .	Insoluble.	.....	Slightly soluble.	Slightly soluble.	Soluble in alkaline solutions, petroleum, rectified coal naphtha, fixed oils, oil of turpentine, and other volatile oils, chloroform and bisulphide of carbon. 100 parts of glycerine dissolve 0.10 part.
Sulphuris iodidum . .	Insoluble.	.....	Decomposed by alcohol.	.....	Soluble in 60 parts of glycerine.
Veratria . . . . .	Almost insoluble.	Soluble in 1000 parts.	Soluble in 11 parts of alcohol, sp. gr. 0.847.	Soluble in 6 parts.	100 parts of olive oil dissolve 1.78 parts. 100 parts of glycerine dissolve 1 part.
Zinci acetat . . . . .	Very soluble.	.....	Moderately soluble in rectified spirit.		
" carbonas præcipitata	Almost insoluble.	.....	Soluble.	Soluble.	100 parts of glycerine dissolve 50 parts.
" chloridum . . . . .	Partly soluble.	.....	Insoluble.	.....	100 parts of glycerine dissolve 35 parts.
" oxidum . . . . .	Insoluble.	.....	Insoluble.		
" sulphas . . . . .	Soluble in 2½ times its weight.	Soluble in less than its weight.			
" valerianas . . . . .	Soluble in 160 parts.	.....	Soluble in 60 parts of alcohol sp. gr. 0.833.		

## ABBREVIATIONS IN COMMON USE.

The practitioner will frequently have occasion to employ some of the following abbreviations in his prescriptions, while others confront him in the course of his medical reading. They are generally derived from the Latin:—

R (*Recipe*). Take.

Aa (*ana*). Of each.

Abd. Abdōmen.

Abs. febr. (*absente febre*). In the absence of fever.

Ad. To (as, ad f̄z̄ij, sufficient to amount to three fluid-ounces).

Ad. or adde. Add or let there be added.

Ad deliq. (*ad deliquium*). To fainting.

Ad lib. (*ad libitum*). At will or pleasure.

Altern. hor. (*alternis horis*). Every other hour.

Ana. Of each.

Aq. (*aqua*). Water.

Aq. bull. (*aqua bulliens*). Boiling water.

Aq. dest. (*aqua destillata*). Distilled water.

Aq. ferv. (*aqua fervens*). Hot water.

Aq. fluv. (*aqua fluvialis*). River water.

Aq. font. (*aqua fontis* or *fontana*). Spring water.

Aq. marin. (*aqua marina*). Sea water.

Aq. plu. (*aqua pluvialis*). Rain water.

Baln. aren. or B. A. (*Balneum arenæ*). Sand-bath.

Bals. (*balsamum*). Balsam.

Bib. (*bibe*). Drink.

Bis ind. (*bis indies*). Twice a day.

Bol. Bolus.

- Bull. (*bulliens*). Boiling. (*Bulliat*). Let it boil.  
C. (*congius*). A gallon.  
C. or Cent. Centigrade (thermometric scale).  
Cap. (*capiat*). Let him take.  
Chart. (*charta* or *chartula*). A powder.  
Cochl. (*cochleare*). A spoonful.  
Cochl. ampl. (*cochleare amplum*). A large spoonful.  
Cochl. inf. (*cochleare infantum*). A child's spoonful.  
Cochl. mag. (*cochleare magnum*). A tablespoonful.  
Cochl. med. (*cochleare medium*). A dessertspoonful.  
Cochl. mod. (*cochleare modicum*). A dessertspoonful.  
Cochl. parv. (*cochleare parvum*). A teaspoonful.  
Col. (*cola*). Strain or filter.  
Collyr. (*collyrium*). An eye-wash.  
Comp. (*compositus*). Compound.  
Conf. (*confectio*). Confection.  
Cont. (*continuetur*). Let it be continued.  
Coq. (*coque*). Boil.  
Cort. (*cortex*). Bark.  
D. (*dosis*). Dose.  
Decoct. (*decoctum*). Decoction.  
Decub. (*decubitus*). Lying down.  
Dej. alv. (*dejectiones alvi*). Passages from the bowels.  
est. (*destillatus*). Distilled.  
Det. (*detur*). Let it be given.  
Dieb. altern. (*diebus alternis*). Every other day.  
Dieb. tert. (*diebus tertiis*). Every third day.  
Dig. (*digeratur*). Let it be digested.  
Dil. (*dilutus*). Diluted. (*Dilue*). Dilute.  
Dim. (*dimidius*). One-half.  
Div. (*divide*). Divide.  
Drach. (*drachma*). A drachm.  
Elec. (*electuarium*). Electuary.  
Enem. Enema.

- Exhib. (*exhibeatur*). Let it be exhibited.  
F. (*fiat*). Let it be made.  
F. pil. (*fiat pilula*). Let a pill be made.  
Fah. or Fahr. Fahrenheit (thermometric scale).  
Feb. dur. (*febre durante*). The fever continuing.  
Fl. (*fluidus*). Fluid. (*Flores*). Flowers.  
Ft. (*fiat*). Let it be made.  
Ft. haust. (*fiat haustus*). Let a draught be made.  
Fract. dos. (*fractâ dosi*). In a broken dose.  
Garg. (*gargarisma*). A gargle.  
Gr. (*granum*). A grain.  
Gt. (*gutta*). A drop.  
Gtt. (*guttæ*). Drops.  
Gum. (*gummi*). Gum.  
Guttat. (*guttatim*). By drops.  
Haust. (*haustus*). A draught.  
Hor. decub. (*horâ decubitûs*). At bedtime.  
H. S. (*horâ somni*). At bedtime.  
Imp. meas. Imperial measure.  
Ind. (*indies*). Daily.  
Inf. (*infunde*). Infuse.  
Infus. (*infusum*). Infusion.  
Inj. (*injiciatur*). Let it be injected.  
Lb. (*libra*). A pound.  
Lib. (*libra* or *libræ*). A pound or pounds.  
Llb. (*libræ*). Pounds.  
Liq. (*liquor*). Solution.  
M. (*misce*). Mix.  
Mac. (*macera*). Macerate.  
Mic. pan. (*mica panis*). Bread crumb.  
Min. (*minimum*). Minim.  
Mist. (*mistura*). Mixture.  
Muc. (*mucilago*). Mucilage.  
O. (*octarius*). A pint.

- Ol. (*oleum*). Oil.  
Ov. (*ovum*). An egg.  
Ox. Oxymel.  
Oz. (*uncia*). An ounce.  
P. (*pondere*). By weight. (*Pars*). A part.  
P.  $\mathcal{A}$ . (*partes æquales*). Equal parts.  
Ph. B. British Pharmacopœia.  
Ph. D. Pharmacopœia of Dublin.  
Ph. E.       "       "       Edinburgh.  
Ph. L.       "       "       London.  
Ph. P.       "       "       Paris.  
Ph. U. S.   "       "       United States.  
Pil. (*pilula* or *pilulæ*). A pill or pills.  
Pill. (*pilulæ*). Pills.  
P. R. N. (*pro re natâ*). As occasion may require.  
Pulv. (*pulvis*). Powder.  
Q. S. (*quantum sufficit*). As much as is sufficient.  
R. Réaumur (thermometric scale).  
Rad. (*radix*). Root.  
Ras. (*rasuræ*). Shavings.  
Rect. (*rectificatus*). Rectified.  
Repet. (*repetatur*). Let it be repeated.  
S. (*signa*). Write or direct.  
S. A. (*secundum artem*). According to art.  
Sem. (*semen*). Seed.  
Semidr. (*semidrachma*). Half a drachm.  
S. G. Specific gravity.  
Signa. Write or direct.  
Sing. (*singulorum*). Of each.  
Solv. (*solve*). Dissolve.  
Sp. and Spir. (*spiritus*). Spirits.  
Sp. gr. Specific gravity.  
Ss. (*semi*). A half.  
St. (*stet*). Let it stand.

Syr. (*syrupus*). Syrup.  
Tinct. (*tinctura*). Tincture.  
Tr. or tra. (*tinctura*). Tincture.  
Trit. (*tritura*). Triturate.  
Troch. (*trochiscus*). A lozenge.  
Usq. ad deliq. (*usque ad deliquium*). To fainting.  
Vitel. ovi (*vitellus ovi*). Yolk of egg.  
Vs. (*venæsectio*). Venesection.

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## COMPARISON OF THERMOMETRIC SCALES.

THE practitioner frequently meets with quotations from each of these scales in the course of his readings. It will therefore become necessary for him to convert the degrees of any one of them, as the centigrade, into one of the others, as the familiar scale of this country, that of Fahrenheit. He must bear in mind that the zero of the two scales—Centigrade and Réaumur—corresponds with the freezing point of water, or 32° on the Fahrenheit scale. The boiling point of water being respectively 100° on the Centigrade scale, 80° on that of Réaumur, and 212° on that of Fahrenheit, it will be seen that the degrees intervening between the two standard points of the scale amount to 100 on the Centigrade scale, 80 on that of Réaumur, and 180 on that of Fahrenheit. This establishes the following ratio of comparison of the three thermometers:—

$$180 : 100 : 80 :: 9 : 5 : 4.$$

When the Fahrenheit scale is in question, 32° must be added or subtracted, as is clearly shown in the accompanying table.



The following condensed rules<sup>1</sup> will facilitate the reader in making an accurate conversion of the scales:—

*Rules for Conversion of Scales.*

C. = Centigrade.

F. = Fahrenheit.

D. = Degree cited.

R. = Réaumur.

	If above freezing point of water (32° F., 0° C., 0° R.).	If below freezing point, and above zero F. (−17.77 C., −14.22 R.).	If below zero F. (−17.77 C., −14.22 R.).
C. into F.	$D \times 9 \div 5 + 32$	$32 - (D \times 9 \div 5)$	$-(D \times 9 \div 5) - 32$
R. " F.	$D \times 9 \div 4 + 32$	$32 - (D \times 9 \div 4)$	$-(D \times 9 \div 4) - 32$
F. " C.	$D - 32 \times 5 \div 9$	$-(32 - D) \times 5 \div 9$	$-(D + 32) \times 5 \div 9$
F. " R.	$D - 32 \times 4 \div 9$	$-(32 - D) \times 4 \div 9$	$-(D + 32) \times 4 \div 9$
C. " R. (all temperatures)	$D \times 4 \div 5.$		
R. " C. " "	$D \times 5 \div 4.$		

<sup>1</sup> Attfield, Chemistry, General, Medical and Pharmaceutical, 7th edit. Philadelphia, 1876.

# **THERAPEUTIC AND PRACTICAL HINTS.**

**( 63 )**



## RULES FOR THE PRACTITIONER.

As an aid to the practitioner, in the daily routine of his profession, the following rules, framed by one of its most distinguished ornaments,<sup>1</sup> will be, if carefully followed, of inestimable value to him, and enure to the comfort and physical improvement of those under his professional care.

1. When a disease is progressing favorably towards recovery, it is unwise to interfere with the spontaneous effort at cure by the administration of drugs. The end and aim of treatment is not only to restore health, but to do so safely and speedily and pleasantly.

2. Where drugs are needed, and there is a choice of remedies, employ that one which will be the least distressing at the time, and subsequently the least injurious to the constitution.

3. Put the medicine into that form in which it can be most easily taken. When possible, especially with children, cover the disagreeable taste of the draught by syrups, etc.

4. If there be an idiosyncrasy with respect to any special medicine, such as mercury, arsenic, iodide of potassium, opium, nux vomica, assafoetida, turpentine, etc., avoid administering it. That a peculiarity of constitution, causing an extreme susceptibility to the influence of certain drugs and foods and odors, sometimes exists, cannot be disputed. It is as certain that it can seldom be safely combated.

<sup>1</sup> Tanner, *Practice of Medicine*, 5th Amer. ed., p. 1047, Phila. 1872.

5. Attend to the condition under which the patient will be at the period of the medicine's action; for example, it will be worse than useless to give a sudorific to an individual obliged to be in the open air soon after taking it.

6. Be careful that the various agents in the prescription are not incompatible with each other, unless it be desired to form some new or particular compound. Chemical incompatibility, however, is by no means synonymous with therapeutic inertness; for experience tells us that certain unchemical compounds—perchloride of mercury and tincture of bark, gallic acid and tincture of opium, calomel and compound ipecacuanha powder, etc., are all valuable preparations in curing diseases.

7. Remember that if a disease be incurable, it may still admit of great alleviation. Hence, it is cruel to give up any case; although, at the same time, the patient is not to be deceived by false promises.

8. Never order, or sanction the use of, a quack medicine; that is, one the composition of which is kept a secret.

9. Bearing in mind the weakness of human nature, as well as the prejudices and superstitions which are current, it is not only necessary to give good advice, but pains must be taken so to impress the patient and attendants that the necessary treatment may be thoroughly carried out. *Hope* and *confidence* are no mean remedial agents, and in many chronic diseases at least, the individual who has *faith* will recover more speedily, *cæteris paribus*, than he who is shy of belief.

10. Simply to prescribe drugs, without regulating the diet and general management of the patient, is to omit a most important duty. In acute diseases plain directions

must be given as to the ventilation and warmth of the sick-room, the amount of light, the position of the bed (not to be placed in a corner), the degree of quiet to be maintained, the avoidance of excitement and whispering, the exclusion of visitors, the cleanliness of the sufferer, and the nature and quantity and times for administration of food. No cooking whatever should be permitted in the sick-room. In cases of long illness, when the patient can be moved without risk, it is often desirable to have two beds in the room, one to be occupied during the day, the other at night. Every precaution must be taken to prevent the spread of infectious disorders. Soiled linen, dirty water, etc., must be immediately removed. In all instances the evacuations ought to be passed in a bed-pan or night-stool containing some disinfectant material (carbolic acid, permanganate of potash, sulphate of iron, etc.).

11. While it is allowed that formulæ may often be employed with great advantage, yet they should not be prescribed with servile exactness; for it should never be forgotten that all medicines of any power have to be adapted to the requirements of the special case under treatment. It has been quaintly but truly observed, that a bundle of ready-made receipts in the hands of the routine practitioner is but a well-equipped quiver on the back of an unskilful archer.

12. In watching the restoration of a sick man to health, it is a mistake to attribute the improvement too confidently to the action of the medicine prescribed, for it may not have been taken, or it may not have been absorbed, or its properties may have been destroyed by adulteration, or it may have even proved injurious—recovery occurring in spite of it.

## WHAT THE PRACTITIONER MUST LEARN OF THE PATIENT.

It is often a matter of convenience, in taking notes of a case, to base them on some general system of inquiry. The young practitioner, especially, should adopt some method of this kind at an early period of his career. In his history of a case from its inception to its close, whether the result be favorable or unfavorable, such an outline sketch, well filled up, will prove valuable for present uses and future reference. As has been truthfully remarked by Dr. Henry W. Acland, by whom the following table was prepared,<sup>1</sup> a skilful practitioner can learn the truth of any case in any order or in no order; but it may be added that such a table will prove useful even to the most systematic:—

### HISTORY.

When were you last quite well? at work? How did you first feel ill? Supposed cause, mode of onset, any medical treatment?

What do you now chiefly complain of? What illnesses have you had before this? (If the examination suggest it, obtain further information concerning residence, occupation, past life, change of habits, history of the family, hereditary predilection, etc.)

### PRESENT STATE.

I. GENERAL ASPECT.—Manner, posture (in bed, out of bed), color, shape, temperature, weight (alteration in), eruption, œdema.

Notice *generally* head, neck, chest, abdomen, limbs.

<sup>1</sup> Handbook for Hospital Sisters, by Florence S. Lees, London, 1874.

II. ORGANS OF DIGESTION.—Hunger, thirst, taste. *Lips*, color, texture. *Teeth*, loose, etc. *Gums*, color, size, texture, position. *Tongue*, protrusion, volume, form, color, surface, dryness, coating. *Stomach*, nausea, vomiting, eructations, pyrosis, pain during, before, after (how soon after?) eating.

III. ORGANS OF ABSORPTION.—*Lymphatics*, red, tender, hard. *Glands*, tender, swollen (for what length of time).

[The patient must be in bed or undressed for a complete inquiry into Nos. IV., V. and VI.]

IV. EXAMINATION OF ABDOMEN.—By palpation, percussions, measurement. Dimension of liver, spleen. Existence of pain, increased or diminished by pressure; general or circumscribed; under the hand or at another point. Existence of tumors, fluids, flatus, feces; of hernia; of tumors in groin; of hemorrhoids; of feces in rectum.

V. ORGANS OF CIRCULATION.—*Heart*, position, dimensions, force, rhythm, sound (character, situation, and distance). *Arteries*, pulse at wrist; rate, volume, hardness, laboring, regularity, intermission, diastole, etc.; tumors. *Veins*, enlargement, tenderness, murmurs.

VI. ORGANS OF RESPIRATION.—*Respiration generally*; frequency, regularity, difficulty, odor of breath. *Nares*, discharges, odor, action. *Epiglottis*; *Larynx*, tenderness, alteration of voice. *Cough*, its character and supposed cause. *Expectoration*, color, odor, tenacity; chemical, microscopical properties.

*Examination of Thorax*.—Form flattened, rounded, asymmetrical; supra and infra-clavicular spaces, etc. *Movements*; *vocal fremitus*; *intercostal spaces*.



*Resonance* on percussion; changed by posture.  
*Sounds* on inspiration, expiration, speaking, coughing, succussion.

VII. ORGANS OF SECRETION AND EXCRETION.—*Skin*, eruption; sweat, quantity, chemical quality; locality. *Kidneys*—Pain in micturition; its seat and direction; pain in the loins. *Urine*, frequency (night or day), quantity, appearance. Microscopic deposits, *organic, inorganic*. Chemical examination—acidity, specific gravity, albumen, sugar, bile, excess of urea, etc.

*Bladder*, tumors, irritability, etc., calculus.

*Bowels*, frequency of action, character of evacuations.

VIII. ORGANS OF GENERATION.—(Male), penis, scrotum, testes, cord.

(Female), *catamenia*—color, quantity, frequency, duration.

*Leucorrhœa*, or other discharges.

*Pain*—its seat, duration, causes, periodicity.

*Uterine*, pelvic, ovarian enlargements, tenderness, ulcerations.

*External sores*—eczema, pruritis.

IX. NERVOUS SYSTEM.—*Brain*, general intelligence, memory, speech, slowness of manner, headache (where), giddiness, sleep, dreams, fits (one kind or more).

*Spinal Cord and Nerves*.—Pain, alterations in kind or degree of sensibility, in sight (pupils), hearing, smell, taste, touch, numbness; tremors, rigidity, rigors, paralysis.

X. ORGANS OF MOTION.—Pain, stiffness, swellings, nodes, ulcers, abscesses.

## DOSES OF MEDICINES.

In addition to the actual quantity of any remedy to be prescribed in individual cases, modifying circumstances must be taken into consideration, such as age, physical condition, etc. It is difficult to limit the effective doses of a medicine within the fixed quantities assigned to it in the various posological tables, such quantities being mentioned as a general guide to the practitioner, beyond which he may sometimes step, according to his own discretion. As will be seen, however, in one of the accompanying tables (see p. 91), an effort has recently been made to define the maximum doses of the more potent agents. The practice of using caution marks for excessive doses knowingly prescribed, has not yet come into vogue in this country, but it has been suggested by the American Pharmaceutical Association, and other authorities, that such methods of protection and safety should be generally adopted.

Wherever desirable, the French metric system is mentioned in conjunction with that in general use, so that the practitioner may become familiarized with its peculiar construction.

### Doses for Children.

The simple rule, generally applicable, is as follows:—

Under twelve years of age diminish the dose of the medicine in the proportion of the age to the age increased by twelve.

At one year of age the dose will be  $\frac{1}{1 + 12} = \frac{1}{13}$ .

At two years,  $\frac{2}{2 + 12} = \frac{1}{7}$ .

At three years,  $\frac{3}{3 + 12} = \frac{1}{5}$ .

At six years,  $\frac{6}{6 + 12} = \frac{1}{3}$ .

Another reliable method of calculating doses for children is the following:<sup>1</sup> The proportionate dose for any age under adult life is represented by the number of the following birthday divided by 24:—

The dose for a child of	1 year	is	$\frac{2}{24} = \frac{1}{12}$ .
"	"	"	2 years is $\frac{3}{24} = \frac{1}{8}$ .
"	"	"	3 " $\frac{4}{24} = \frac{1}{6}$ .
"	"	"	5 " $\frac{6}{24} = \frac{1}{4}$ .
"	"	"	11 " $\frac{11}{24} = \frac{1}{2}$ .

In prescribing individual remedies for diseases of children, the practitioner must not, however, be governed blindly by such a table as is here offered. In some instances it will be necessary for him to diminish the amounts, in others to increase them, although in very young children extreme caution will be required if the agent is very potent, as in the case of the opiates, antimony, etc. Some of the comparatively harmless remedies mentioned, such as *syrupus rhei aromaticus*, *oleum ricini*, *mistura cretæ*, etc., may be given in rather larger doses than are here assigned to them, or than the ratio above given would seem to warrant. Children tolerate larger proportional doses, also, of the bromides, of quinia, belladonna, cod-liver oil, chlorate of potash, and other remedies. The doses of opium, antimony, *veratrum viride*, etc., it will be seen, are decidedly smaller than the ratio there given. Very young children are not as susceptible to the action of mercurials as adults. As a general rule,

<sup>1</sup> Dr. R. O. Cowling, *Amer. Practitioner*, July, 1872.

the quantities here mentioned are such as will bear repetition. After all, the good sense and discretion of the prescriber must in the case of children, even more guardedly than in that of adults, direct him as to the appropriateness of a remedy, and the frequency of its employment.

Several years since the Pharmacopœia of Guy's Hospital contained a schedule of a posological table, which forms a useful guide to attain the same end. The maximum or full adult dose is taken as the point of departure for the doses to be given at all ages. The ratios do not correspond exactly with those just given for children, but approximate them sufficiently for all useful purposes:—

Age.	Maximum dose.		
	One ounce, ʒj	One drachm, ʒj	One scruple, ʒj
1 month . . .	gr. xxx	gr. iij	gr. j
3 months . . .	gr. xxx	gr. iv	gr. j
6 " . . .	gr. xl	gr. vj	gr. ij
9 " . . .	gr. xl	gr. viij	gr. ij
1 year . . .	ʒj	gr. viij	gr. iij
2 years . . .	ʒiiss	gr. x	gr. iv
3 " . . .	"	gr. xij	gr. iv
4 " . . .	ʒij	gr. xv	gr. v
5 " . . .	ʒiiss	gr. xvij	gr. vj
6 " . . .	ʒiij	gr. xx	gr. vij
7 " . . .	ʒiiss	gr. xxv	gr. viij
8 " . . .	ʒss	ʒss	gr. x
10 " . . .	ʒivss	gr. xxxv	gr. xij
12 " . . .	ʒv	gr. xl	gr. xiv
13 " . . .	ʒvss	gr. xl	gr. xv
15 " . . .	ʒvj	gr. xlv	gr. xvj
18 " . . .	ʒviss	gr. xlv	gr. xvij
20 " . . .	ʒvij	gr. l	gr. xvij
21 to 45 " . . .	ʒj	ʒj	gr. xx
50 " . . .	ʒvij	gr. l	gr. xvij
60 to 70 " . . .	ʒvj	gr. xlv	gr. xvj
80 to 90 " . . .	ʒv	gr. xl	gr. xlv.
100 " . . .	ʒss	ʒss	gr. x

By way of illustration of the rules here laid down, the following examples, embracing the chief medicines prescribed for young children, may be cited. The average dose for the adult is first mentioned as a guide, deductions being made from it to exhibit in a regular series the influence of age on the dose. As the remedies mentioned are such as are almost daily employed, the list will doubtless be consulted frequently by the practitioner. It will save him the trouble of estimating for himself the quantity to be administered to infants and children, the calculations being carefully made in each instance. It will be observed that the ages mentioned range from infancy to four years. After the latter period, the practitioner can readily fix the dose from the data here given, and from comparison with the tables to be hereafter presented (see p. 80). As a rule, the remedies prescribed for young children are soluble in water or syrup, or readily miscible for administration in a palatable form.

Should the practitioner desire to convert this table into the phraseology of the metric system, he must bear in mind that 1 gramme = 15.434 grains, that 1 fluidrachm = 3.7 grammes, and 1 minim = .06 grammes, or 6 centigrammes.<sup>1</sup>

<sup>1</sup> As already explained (p. 31), this varies with the tenuity, etc., of the fluid.

*Doses for Young Children.*

ARTICLE.	Adult dose.	Under one year.	One year.	Two years.	Four years.
Acetum acillæ . . .	fʒj	gtt. iv	gtt. viij	gtt. x	gtt. xvj
Acidum benzoicum . .	gr. xx	gr. j	gr. lss	gr. ivss	gr. iv
“ carbolium . . .	gr. j	gr. ʒss	gr. ʒss	gr. ʒ	gr. ʒ
“ hydrocyanicum dilutum . .	gtt. lss	gtt. ʒss	gtt. ʒ	gtt. ʒ	gtt. ʒ
“ nitricum dilutum . .	gtt. x	gtt. ss	gtt. j	gtt. lss	gtt. iij
“ sulphuricum aromaticum . .	gtt. x	gtt. ss	gtt. j	gtt. lss	gtt. iij
Æther . . .	fʒi	gtt. viij	gtt. xij	gtt. xx	gtt. xxx
Alumen <sup>1</sup> . . .	gr. xx	gr. j	gr. ij	gr. iij	gr. iv
Aloes . . .					
Ammonii bromidum . .	gr. xv	gr. ʒ	gr. ʒss	gr. ij	gr. iij
“ carbonas . . .	gr. xv	gr. ʒ	gr. ʒss	gr. ij	gr. iij
“ chloridum . . .	gr. xv	gr. ʒ	gr. ʒss	gr. ij	gr. iij
Antimonii et potassii tartras <sup>2</sup> (emetio) . .	gr. ij	gr. ʒss	gr. ʒ	gr. ʒ	gr. ʒ
“ (diaphoretic) . .	gr. ʒ	gr. ʒss	gr. ʒss	gr. ʒss	gr. ʒss
Antimonium sulphuratum <sup>2</sup> . .	gr. ij	gr. ʒss	gr. ʒ	gr. ʒ	gr. ʒ
Aqua camphoræ . . .	fʒss	gtt. xv	gtt. xx	gtt. xxx	fʒj
“ cinna <sup>2</sup> moni . . .	fʒss	gtt. xv	gtt. xx	gtt. xxx	fʒj
“ menthæ piperitæ . .	fʒss	gtt. xv	gtt. xx	gtt. xxx	fʒj
Argenti nitras . . .	gr. ss	gr. ʒss	gr. ʒss	gr. ʒss	gr. ʒss
Arsenici iodidum . . .	gr. ʒss	gr. ʒss	gr. ʒss	gr. ʒss	gr. ʒss
Assafœtida . . .	gr. x	gr. ss	gr. j	gr. lss	gr. ij
Bismuthi subnitras . .	gr. xv	gr. ʒ	gr. ʒss	gr. ij	gr. iij
Carbo ligni . . .	ʒj	gr. iij	gr. v	gr. vj	gr. x
Chloral . . .	gr. xv	gr. ʒ	gr. j	gr. lss	gr. ij
Chloroformum . . .	gtt. x	gtt. ss	gtt. j	gr. lss	gr. iij
Cinchonæ pulvis . . .	gr. xxx	gr. lss	gr. lss	gtt. ivss	gtt. vj
Creta præparata . . .	gr. xx	gr. j	gr. ij	gr. iijss	gr. iv
Cupri sulphas . . .	gr. ʒ	gr. ʒss	gr. ʒss	gr. ʒss	gr. ʒss
“ “ (emetio) . . .	gr. iij	gr. ʒ	gr. ʒ	gr. ʒ	gr. ʒ
Creasotum . . .	gtt. j	gtt. ʒss	gtt. ʒss	gtt. ʒ	gtt. ʒ
Extractum belladonnæ . .	gr. ʒ	gr. ʒss	gr. ʒss	gr. ʒss	gr. ʒss
“ cinchonæ fluidum . .	gtt. xx	gtt. j	gtt. ij	gtt. iij	gtt. iv
“ ergotæ fluidum . .	gtt. xx	gr. j	gtt. ij	gtt. iij	gtt. iv
“ nucis vomicæ . . .	gr. ss	gr. ʒss	gr. ʒss	gr. ʒss	gr. ʒss
“ spigeliæ et sennæ fluidum . .	fʒss	gtt. xv	gtt. xx	fʒss	fʒj

<sup>1</sup> As an emetic in croup, alum has been given in teaspoonful doses to children.

<sup>2</sup> Although the doses are here mentioned, antimonial preparations should not be given to the very young.

*Doses for Young Children—Continued.*

ARTICLE.	Adult dose.	Under one year.	One year.	Two years.	Four years.
Ferri et ammonii citras	gr. x	gr. ss	gr. j	gr. iss	gr. ij
“ hypophosphis .	gr. v	gr. ½	gr. ss	gr. ½	gr. j
“ et quiniæ citras .	gr. iij	gr. ½	gr. ss	gr. j	gr. iss
Ferrum redactum .	gr. v	gr. ss	gr. j	gr. iss	gr. ij
Hydrargyri chloridum					
corrosivum <sup>1</sup>	gr. ½	gr. ⅙	gr. ⅙	gr. ⅙	gr. ⅙
“ chloridum mite—					
(purgative) .	gr. x	gr. ss	gr. j	gr. iss	gr. ij
(alterative) .	gr. ⅙	gr. ⅙	gr. ⅙	gr. ⅙	gr. ⅙
Hydrargyrum cum cretâ	gr. x	gr. ss	gr. j	gr. iss	gr. ij
Infusum digitalis .	f3ij	gtt. vj	gtt. x	gtt. xv	gtt. xxv
Jalapa .	gr. x	gr. ss	gr. j	gr. ij	gr. iij
Liquor ammonii acetatis .	f3ss	gtt. xv	gtt. xxv	gtt. xl	f3j
“ calois .	f3j	f3ss	f3j	f3j	f3ij
“ ferri nitratis .	℥x	gtt. ss	gtt. j	gtt. iss	gtt. ij
“ morphisæ sulphatis	f3j	gtt. v	gtt. x	gtt. xv	gtt. xx
“ potassii arsenitis	℥vj	gtt. ss	gtt. j	gtt. iss	gtt. ij
Magnesia .	℥ij	gr. ij	gr. v	gr. viij	gr. xij
Magnesiæ carbonas .	℥ij	gr. iij	gr. vj	gr. x	gr. xv
“ sulphas .	3j	gr. xxv	gr. xl	3j	3iss
Mistura assasfoetidæ .	f3ss	gtt. xx	gtt. xxx	f3j	f3iss
“ cretæ .	f3ss	gtt. xx	gtt. xxx	f3j	f3ij
Morphisæ sulphas .	gr. ½	gr. ⅙	gr. ⅙	gr. ⅙	gr. ⅙
Oleum chenopodii .		gtt. ij	gtt. ij	gtt. iv	gtt. viij
“ morrhue .	f3ss	gtt. xv	gtt. xx	f3j	f3iss
“ ricini .	f3j	f3ss	f3ss	f3j	f3j
“ terebinthinæ .	℥x	℥j	℥j	℥ij	℥ij
Opium <sup>2</sup> .	gr. j	gr. ⅙	gr. ⅙	gr. ½	gr. ½
Plumbi acetat .	gr. ij	gr. ⅙	gr. ½	gr. ½	gr. ½
Potassii acetat .	gr. xl	gr. ij	gr. iij	gr. v	gr. viij
“ bicarbonas .	gr. xxx	gr. iss	gr. iiss	gr. iv	gr. vj
“ bitartras .	3ij	gr. vj	gr. x	gr. xv	gr. xxv
“ bromidum .	gr. xx	gr. iss	gr. iij	gr. iv	gr. vj
“ carbonas .	gr. xx	gr. j	gr. iss	gr. iiss	gr. iv
“ chloras .	gr. xx	gr. j	gr. iss	gr. iiss	gr. iv
“ citras .	gr. xx	gr. j	gr. iss	gr. iiss	gr. iv
“ iodidum .	gr. v	gr. ½	gr. ½	gr. j	gr. iss
Pulvis ipecacuanhiæ					
compositus <sup>2</sup> .	gr. x	gr. ss	gr. j	gr. iss	gr. ij
Quiniæ sulphas (tonic)	gr. ij	gr. ⅙	gr. ½	gr. ½	gr. ½
(antiperiodic)	gr. xv	gr. ij	gr. iij	gr. iij	gr. iv

<sup>1</sup> Young children have a certain amount of tolerance of mercurial preparations.

<sup>2</sup> Opium must be prescribed with the utmost caution to young children.

*Doses for Young Children—Continued.*

ARTICLE.	Adult dose.	Under one year.	One year.	Two years.	Four years.
Rheum . . .	gr. x	gr. $\frac{1}{2}$	gr. $\frac{1}{2}$	gr. j	gr. ij
Santonium . . .	gr. iij	gr. ss	gr. ss	gr. j	gr. ij
Scammonium . . .	gr. x	gr. ss	gr. j	gr. iss	gr. ij
Senna . . .	3j	gr. iij	gr. v	gr. viij	gr. xij
Sodii bicarbonas . . .	gr. xv	gr. j	gr. iss	gr. ij	gr. iij
“ bromidum . . .	gr. xv	gr. j	gr. iss	gr. ij	gr. iij
Spigelia . . .	3ij	gr. v	gr. x	gr. xv	gr. xx
Spiritus ammoniæ aromaticus . . .	f3j	gtt. vj	gtt. x	gtt. xv	gtt. xx
“ ætheris nitrosi . . .	f3j	gtt. x	gtt. xv	gtt. xxv	gtt. xl
Strychnia . . .	gr. $\frac{1}{2}$	gr. $\frac{1}{16}$	gr. $\frac{1}{16}$	gr. $\frac{1}{16}$	gr. $\frac{1}{16}$
Sulphur . . .	3ij	gr. vj	gr. x	gr. xv	gr. xxv
Syrupus ferri iodidi . . .	gtt. xx	gtt. j	gtt. ij	gtt. iij	gtt. iv
“ ipecacuanhæ <sup>1</sup> . . .	f3j	gtt. v	gtt. vij	gtt. xij	gtt. xvij
“ rhei aromatics . . .	f3ss	gtt. xx	gtt. xxx	f3ss	f3j
“ sarsaparillæ compositus <sup>2</sup> . . .	f3ss	gtt. xx	gtt. xxx	f3ss	f3j
“ scillæ . . .	f3ss	gtt. ij	gtt. iv	gtt. vj	gtt. x
“ scillæ compositus <sup>3</sup> . . .	f3ss	gtt. ij	gtt. iv	gtt. vj	gtt. x
Tinctura camphoræ . . .	gtt. xxx	gtt. j	gtt. ij	gtt. iij	gtt. v
“ digitalis . . .	gtt. x	gtt. ss	gtt. j	gtt. iss	gtt. ij
“ ferri chloridi . . .	gtt. xx	gtt. j	gtt. iss	gtt. ij	gtt. iv
“ gentianæ composita . . .	f3ij	gtt. xij	gtt. xx	gtt. xxx	gtt. xlv
“ hyoscyami . . .	gtt. xl	gtt. ij	gtt. iij	gtt. v	gtt. viij
“ krameris . . .	f3j	gtt. vj	gtt. x	gtt. xv	gtt. xxv
“ nucis vomicæ . . .	gtt. x	gtt. ss	gtt. j	gtt. iss	gtt. ij
“ opii <sup>4</sup> . . .	gtt. xxv	gtt. ss	gtt. j	gtt. ij	gr. iv
“ “ camphorata . . .	f3ij	gtt. x	gtt. xv	gtt. xxv	gtt. xl
“ “ deodorata . . .	gtt. xx	gtt. ss	gtt. j	gtt. ij	gtt. iv
“ veratri viridis <sup>5</sup> . . .	gtt. v	gtt. $\frac{1}{2}$	gtt. ss	gtt. j	gtt. iss
Vinum antimonii <sup>6</sup> . . .	f3j	gtt. iv	gtt. vij	gtt. xij	gtt. xvij
“ ipecacuanhæ (emetico) . . .	f3ss	gtt. xxx	f3j	f3j	f3iss
Zinci oxidum . . .	gr. v	gr. $\frac{1}{2}$	gr. ss	gr. $\frac{1}{2}$	gr. j
“ sulphas (emetico) . . .	gr. x	gr. ss	gr. j	gr. iss	gr. ij
“ “ (tonic) . . .	gr. j	gr. $\frac{1}{16}$	gr. $\frac{1}{16}$	gr. $\frac{1}{8}$	gr. $\frac{1}{2}$

<sup>1</sup> To produce an emetic action the dose must be increased.<sup>2</sup> Chiefly employed as a vehicle.<sup>3</sup> See cautionary remarks under antimonii et potassii tartaras. Larger doses than are here given are necessary if an emetic action be desired.<sup>4</sup> See opium for caution in regard to employment of opiates.<sup>5</sup> Veratrum viride should be prescribed to young children with extreme caution.<sup>6</sup> The doses are mentioned, but antimonials should not be prescribed to very young children.



### Doses based on the Weight of the Patient.

This method of calculating the dose is an unusual one, but it seems to respond tolerably accurately to the test of experiment. In a large number of cases, the results attained will be singularly in unison with those arrived at by the processes already alluded to for young people. As children, however, vary so much in size, and the inconvenience of guessing or of procuring the actual weight may be an obstacle in the way of extreme accuracy of measurement of the dose, it is more desirable to adhere to the rules already laid down. As a matter of curiosity, it is well to know that, according to this method of calculation, and allowing the average weight of the adult to be 150 pounds, for whom the proper dose is assumed to be 1, the dose of medicine, as a general rule, must be increased or diminished in the proportion of the patient's weight to that number of pounds, a proportion represented by a fraction whose numerator is the patient's weight and whose denominator is 150.<sup>1</sup>

If a child at birth weighs 6 pounds, the approximate dose for it would be  $\frac{6}{150}$  or  $\frac{1}{25}$ .

If it weighs 10 pounds,  $\frac{10}{150}$  or  $\frac{1}{15}$ .

A child 2 years old, weighing 20 pounds, would require  $\frac{20}{150}$ , or about  $\frac{1}{4}$  of an adult dose.

A child 12 years old, weighing 75 pounds, would require  $\frac{75}{150}$ , or  $\frac{1}{2}$  of an average dose.

A person whose weight is 200 pounds should have  $\frac{200}{150}$ , or  $1\frac{1}{3}$  of an average adult dose.

The modifications of the average dose demanded by a patient's idiosyncrasy, disease, and other conditions than age or weight, are not, of course, met by this rule.

<sup>1</sup> Prof. E. H. Clarke on A New Rule for Doses, Boston Med. and Surg. Journal, Sept. 26, 1872.

### Doses of Remedies in General.

In the following list are given the doses of several hundred articles of the *Materia Medica*. The table has been carefully arranged by the author, and will doubtless be found serviceable to the practitioner.

Under the head of "Official Preparations," reference is made to the preparations of the U. S. Pharmacopœia, of which the remedy is an important ingredient. (See *Pharmacopœial Groups*.)

Under the heading "Approximate Metric Dose," is given as nearly as possible the dose of the remedy according to the metric system, corresponding, in each instance, with that given to it under the heading "Dose," according to the system in general use. The metric dose is given in grammes alone, the transposition of which into decigrammes, centigrammes, etc., may be readily made by the reader, if deemed desirable, according to the tables previously given. To avoid the apparent intricacy of the metric system, the approximate dose is alone mentioned. Thus absinthium is credited with a dose of 1.3 to 2.6 grammes, whereas the actual amount is 1.295 to 2.591 grammes. Usually this will be sufficiently explicit, except in the case of potent remedies, such as digitalinum, where even minute fractions of a gramme would be of consequence. The gramme, it must be remembered, is equal to 15.434 grains. Liquids are estimated according to the rule previously given (p. 31).

When the dose of a remedy is not mentioned in the following table, the article is not prescribed alone internally, but in some officinal preparation, or externally.

The doses of Tinctures, Syrups, Extracts, Infusions, etc., will be found separately detailed under "*Pharmacopœial Groups*."<sup>1</sup>

<sup>1</sup> Additional *New Remedies* will be found on p. 336.

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Absinthium . . .	gr. xx-xl	1.3-2.6	
Acacia . . . . .	.....	.....	Mucilagines, syr.
Acetum . . . . .	f℥j-iv	3.7-15.0	Aceta. [upi.
Achillea . . . . .	gr. xxx	2.0	
Acidum arseniosum . . .	gr. $\frac{1}{10}$	.006	
“ benzoicum . . .	gr. x-xxx	.65-2.0	Tincturæ.
“ carbolicum . . .	gr. j-ij	.06-.13	Aquæ, glycerita,
“ bromohydricum . .	f℥ss	2.0	suppositoria, un-
“ carbonicum . . .	.....	.....	guenta.
“ citricum . . .	gr. v-xxx	.3-2.0	Aquæ.
“ gallicum . . .	gr. ij-v	.13-.3	Syrupi.
“ hydriodicum di-			Glycerita.
lutum . . .	m℥v-xxx	.3-2.0	
“ hydrocyanicum			
dilutum . . .	m℥i-ss	.05-.08	
“ lacticum . . .	f℥ss-ij	2.0-7.5	
“ muriaticum . . .	m℥v-x	.3-.6	
“ “ dilutum	m℥xx-xl	1.3-2.5	
“ nitricum . . .	m℥ij-v	.1-.3	
“ “ dilutum	m℥x-xx	.6-1.3	
“ nitromuriaticum	m℥ij-v	.1-.3	
“ “ dilutum	m℥x-xx	.6-1.3	
“ phosphoricum di-			
lutum . . .	m℥x-xl	.6-2.5	
“ salicylicum . . .	gr. v-x	.3-.65	
“ sulphuricum aro-			
maticum . . .	m℥x-xx	.6-1.3	
“ sulphuricum di-			
lutum . . .	m℥x-xx	.6-1.3	
“ sulphureosum . .	f℥j	3.75	
“ taunicum . . .	gr. $\frac{1}{4}$ -ijj	.02-.2	Glycerita, supposi-
“ tartaricum . . .	℥j-ij	4.0-8.0	toria, trochisci,
“ valerianicum . .	m℥v	.3	unguenta.
Aconiti folia . . .	gr. j-ij	.06-.13	Pulveres.
“ radix . . . . .	.....	.....	Extracta.
Aconitia . . . . .	gr. $\frac{1}{10}$ - $\frac{1}{10}$	.0006-.001	Emplastra, lini-
Æther . . . . .	f℥ss-j	1.7-3.4	menta, tincturæ.
Aletris . . . . .	gr. x	.65	Spiritus.
Allium . . . . .	℥ss-ij	2.0-8.0	
Aloe . . . . .	gr. iiij-xv	.2-1.0	Syrupi.
			Pilulæ, pulveres,
			suppositoria, tinc-
			turæ, vina.
Aloin . . . . .	gr. ij-iv	.13-.26	
Alumen . . . . .	gr. x-xx	.65-1.3	

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Aluminii et potassii sul- phas . . . .	gr. x-xx	.65-1.3	
Aumonia . . . .	.....	.....	Aquæ, linimenta, spiritus, tincturæ.
Ammoniacum . . . .	gr. x-xxx	.65-2.0	Emplastra, mis- turæ.
Ammonii acetas . . . .	.....	.....	Liquores.
“ benzoas . . . .	gr. x-xxx	.65-2.0	
“ bromidum . . . .	gr. v-xx	.3-1.3	
“ carbazotas . . . .	gr. j-ij	.06-.13	
“ carbonas . . . .	gr. v-xx	.3-1.3	Spiritus.
“ chloridum . . . .	gr. v-xxx	.3-2.0	
“ iodidum . . . .	gr. j-ij	.06-.2	
“ phosphas . . . .	gr. x-xxx	.65-2.0	
“ valerianas . . . .	gr. ij-x	.13-.65	[guenta.
Amygdala amara . . . .	.....	.....	Aquæ, syrapi, nu-
“ dulcis . . . .	.....	.....	Misturæ, syrapi.
Amyl nitris . . . .	gtt. ij-ij	.1-.2	
Anethi fructus . . . .	gr. xv-lx	1.0-4.0	
Angustura . . . .	gr. x-xxx	.65-2.0	Infusa.
Anisum . . . .	gr. xx-xxx	1.3-2.0	Aquæ, olea, spiri- tus.
Anthemis . . . .	gr. xxx-lx	2.0-4.0	Infusa.
Antimonii et potassii tar- tras . . . .	gr. $\gamma_0^1$ -j	.006-.06	Emplastra, syrapi, unguenta, vina.
Antimonii sulphuretum . . . .	gr. ij-x	.13-.65	
Antimonium sulphuratum	gr. i-ij	.06-.1	Pilulæ. (Emetic dose, gr. v-xx.)
Apiol . . . .	gr. ij-v	.13-.3	
Apocynum androsæmifo- lium . . . .	gr. x-xx	.65-1.3	
Apocynum cannabinum . . . .	gr. v-x	.3-.65	
Aqua . . . .	.....	.....	Aquæ.
Aralia nudicaulis . . . .	gr. xxx	2.0	
“ spinosa . . . .	gr. xx-xxx	1.3-2.0	
Argenti nitras . . . .	gr. $\frac{1}{4}$ -j	.02-.06	
“ oxidum . . . .	gr. ss-j	.03-.06	
Armoracia . . . .	gr. xxx	2.0	Extracta, emplas- tra, tincturæ.
Arnica . . . .	gr. v-xx	.3-1.3	Liquores.
Arsenici iodidum . . . .	gr. $\gamma_0^1$	.006	Liquores.
Arum . . . .	gr. x	.65	
Asarum . . . .	gr. xx-xxx	1.3-2.0	
Asclepias . . . .	gr. xx-lx	1.3-4.0	
Assafoetida . . . .	gr. x	.65	Emplastra, mistu- ræ, pilulæ, sup- positoria, tinc- turæ.

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Atropia . . . .	gr. $\frac{1}{60}$ – $\frac{1}{30}$	.001–.002	
Atropiæ sulphas . . . .	gr. $\frac{1}{60}$ – $\frac{1}{30}$	.001–.002	
Aurantii cortex . . . .	.....	.....	Confectiones, sympi, tincturæ. Aque, sympi.
“ flores . . . .	.....	.....	
Auri cyanidum . . . .	gr. $\frac{1}{2}$ – $\frac{1}{4}$	.004–.008.	
“ iodidum . . . .	gr. $\frac{1}{2}$ – $\frac{1}{4}$	.005–.02	
Balsamum Peruvianum . . . .	f 3ss–i	2.5–5.0	
“ toluianum . . . .	gr. x–xxv	.65–1.6	
Barii chloridum . . . .	.....	.....	Liquores.
Belladonnæ folia . . . .	gr. j–ij	.06–.13	Extracta, tincturæ, unguenta.
“ radix . . . .	.....	.....	Emplastra, sup- positoria.
Benzoinum . . . .	g. x–xxx	.65–2.0	Tincturæ, unguen- [ta.
Bismuthi subcarbonas . . . .	gr. v–xx	.3–1.3	
“ subnitras . . . .	gr. v–xx	.3–1.3	
“ valerianas . . . .	gr. ss–ij	.03–.13	
Brayera . . . .	3ss	15.5	
Buchu . . . .	gr. xx–xxx	1.3–2.0	Extracta, infusa.
Caffeina . . . .	gr. j–ij	.06–.13	
Calamus . . . .	gr. xx–xl	1.3–2.6	
Calcii carbonas præcipi- tata . . . .	gr. x–lx	.65–4.0	
Calcii chloridum . . . .	.....	.....	Liquores.
“ hypophosphis . . . .	gr. x–xxx	.65–2.0	
“ lactophosphas . . . .	gr. xx–xl	1.3–2.6	
Calumbo . . . .	gr. x–xxx	.65–2.0	Extracta, infusa, tincturæ.
Calx . . . .	.....	.....	Liquores, linimen- [ta.
“ chlorinata . . . .	gr. ij–v	.13–.3	
Camphora . . . .	gr. iiij–xx	.2–1.3	Aque, linimenta, spiritus, tincturæ.
“ monobrominata . . . .	gr. ij–v	.13–.3	
Canella . . . .	gr. x–xxx	.65–2.0	Pulveres.
Cannabis Americana . . . .	.....	.....	Extracta.
“ Indica . . . .	.....	.....	Extracta, tincturæ.
Cantharis . . . .	gr. j–ij	.06–.13	Extracta, cerata, chartæ, collodium, linimenta, tinctu- ræ, unguenta.
Capsicum . . . .	gr. v–x	.3–.65	Infusa, oleo-resinæ, [tincturæ.
Carbo animalis purificata . . . .	gr. j–v	.06–.3	
“ ligni . . . .	3j–iv	4.0–15.5	
Cardamomum . . . .	.....	.....	Pulveres, tincturæ.
Carum . . . .	gr. xx–xl	1.3–2.6	Olea, tincturæ.
Caryophyllum . . . .	.....	.....	Infusa, olea.
Cascarilla . . . .	gr. xx–xxx	1.3–2.0	Infusa.

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Cassia fistula . . .	3j-3j	4.0-31.0	
“ Marilandica . . .	3ss-ij	2.0-12.0	
Castanea . . . . .	3ss-j	2.0-4.0	
Castoreum . . . . .	gr. x-xxv	.65-1.6	Tincturæ.
Catechu . . . . .	gr. x-xxx	.65-2.0	Infusa, tincturæ.
Cataria . . . . .	3ij	8.0	
Ceri oxalas . . . . .	gr. j-ij	.06-.13	
Cetaceum . . . . .	.....	.....	Cerata.
Cetraria . . . . .	gr. xxx-lx	2.0-4.0	Decocta.
Chenopodium . . . . .	gr. xx-xl	1.3-2.6	Olea.
Chimaphila . . . . .	.....	.....	Decocta, extracta.
Chiretta . . . . .	gr. xx	1.3	
Chloral . . . . .	gr. x-xl	.65-2.6	
Chlorinum . . . . .	.....	.....	Aquæ.
Chloroformum purificatum	gtt. x-xx	.8-1.6	Linimenta, misturæ, spiritus.
Cimicifuga . . . . .	gr. xx-lx	1.3-4.0	Extracta.
Cinchona . . . . .	gr. xv-lx	1.0-4.0	Decocta, extracta, infusa, tincturæ.
Cinchonæ sulphas . . .	gr. j-x	.06-.65	
Cinchonidæ sulphas . .	gr. j-v	.06-.3	
Cinnamomum . . . . .	gr. x-xx	.65-1.3	Aquæ, pulveres, spiritus, tincturæ.
Coccos . . . . .	.....	.....	Tincturæ.
Codeia . . . . .	gr. j-ij	.06-.13	
Colchici radix . . . . .	gr. ij-vj	.13-.4	Extracta, vina.
“ semen . . . . .	gr. ij-vj	.13-.4	Extracta, tincturæ, vina.
Colocynthis . . . . .	gr. v-x	.3-.65	Extracta, pilulæ.
Conii folia . . . . .	gr. ij-v	.2-.3	Extracta, tincturæ.
“ fructus . . . . .	.....	.....	Extracta.
“ succus . . . . .	m xxx-lx	1.7-3.4	
Copaiba . . . . .	gtt. xx-f3j	1.25-3.75	Olea, pilulæ.
Coptis . . . . .	gr. x-xxx	.65-2.0	
Coriandrum . . . . .	gr. xx-lx	1.3-4.0	
Cornus circinata . . . .	gr. xx-lx	1.3-4.0	
“ Florida . . . . .	gr. xx-lx	1.3-4.0	Decocta, extracta.
“ sericea . . . . .	gr. xx-lx	1.3-4.0	
Creasotum . . . . .	m j	.06	Aquæ, unguenta.
Creta præparata . . . .	gr. x-xl	.65-2.6	Misturæ, trochisci.
Crocus . . . . .	gr. x-xxx	.65-2.0	
Croton chloral . . . . .	gr. v-xv	.3-1.0	
Cubeba . . . . .	gr. x-3ij	.65-8.0	Extracta, olea, oleo-resinæ, tincturæ, trochisci.

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Cupri sulphas . . .	gr. $\frac{1}{2}$ -ss	.016-.03	(Emetic dose, gr. ij-v.)
Cuprum ammoniatum . . .	gr. $\frac{1}{2}$ -ss	.016-.03	
Cypripedium . . .	gr. xv.	1.0	
Datura . . .	gr. $\frac{1}{100}$ - $\frac{1}{30}$	.0006-.0013	
Digitalis . . .	gr. j	.06	Extracta, infusa, tincturæ.
Digitalinum . . .	gr. $\frac{1}{30}$ - $\frac{1}{30}$	.001-.002	
Dracontium . . .	gr. x-xx	.65-1.3	
Dulcamara . . .	gr. xxx-3j	2.0-4.0	Decocta, extracta.
Elaterin . . .	gr. $\frac{1}{6}$ - $\frac{1}{12}$	.004-.005	
Elaterium . . .	gr. $\frac{1}{2}$ -j	.016-.03	
“ Clutterbuck's . . .	gr. $\frac{1}{2}$	.008	
Emetia . . .	gr. $\frac{1}{2}$ -j	.005-.01	
Ergota . . .	gr. xx-3j	1.3-4.0	Extracta, vina.
Ergotina . . .	gr. j-ij	.06-.13	
Erigeron Canadense . . .	gr. xxx-3j	2.0-4.0	Extracta, olea.
Eucalyptus . . .	gr. xxx-3j	2.0-4.0	
Eupatorium . . .	gr. xx-xxx	1.3-2.0	Infusa.
Euphorbia corollata . . .	gr. iij-x	.2-.65	
“ ipecacuanha . . .	gr. x-xv	.65-1.0	
Ferri arsenias . . .	gr. $\frac{1}{16}$	.004	
“ et ammonii citras . . .	gr. v-x	.3-.65	
“ “ sulphas . . .	gr. iij-xij	.2-.8	
“ “ tartras . . .	gr. x-xxx	.65-2.0	
“ carbonas . . .	gr. v-xxx	.3-2.0	Liquores, misturæ, pilulæ.
“ bromidum . . .	gr. v-xx	.3-1.3	
“ chloridum . . .	gr. x-xx	.65-1.3	Liquores, tincturæ.
“ citras . . .	gr. v-xx	.3-1.3	Liquores.
“ ferrocyanidum . . .	gr. iij-v	.2-.3	
“ hypophosphis . . .	gr. ij-x	.13-.65	Syrupi.
“ iodidum . . .	gr. j-viij	.06-.5	
“ lactas . . .	gr. ij-x	.13-.65	
“ nitras . . .	.....	...	Liquores.
“ oxalas . . .	gr. ij-v	.13-.3	
“ oxidum hydratum . . .	gr. v-xx	.3-1.3	
“ phosphas . . .	gr. v-x	.3-.65	
“ et potassii tartras . . .	gr. x-xxx	.65-2.0	
“ pyrophosphas . . .	gr. ij-vj	.13-.4	
“ et quiniæ citras . . .	gr. v-xv	.3-1.0	Emplastra, tro- chisci.
“ subcarbonas . . .	gr. v-xx	.3-1.3	Liquores, misturæ.
“ sulphas . . .	gr. j-v	.06-.3	
“ “ exsiccata . . .	gr. j-iv	.06-.26	Pilulæ.
Ferrum . . .	.....	.....	Pilulæ.
“ redactum . . .	gr. ij-x	.13-.65	
Filix mas . . .	3j-ij	4.0-12.0	Oleoresinæ.
Fœniculum . . .	gr. xx-xxx	1.3-2.0	Aquæ, olea.

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
<i>Frasera</i> . . . .	gr. xxx-3j	2.0-4.0	
<i>Galbanum</i> . . . .	gr. x-xx	.65-1.3	Emplastra, pilulæ.
<i>Galla</i> . . . .	gr. x-xx	.65-1.3	Tincturæ, unguen- ta.
<i>Gambogia</i> . . . .	gr. ij-vj	.13-.4	Pilulæ.
<i>Gaultheria</i> . . . .	.....	.....	Olea.
<i>Gelsemium</i> . . . .	gr. ij-ijj	.13-.2	Extracta.
<i>Gentiana</i> . . . .	gr. x-xl	.65-2.6	Extracta, infusa,
<i>"</i> <i>Catesbæi</i> . . . .	gr. xv-xxx	1.0-2.0	[tincturæ.
<i>Geranium</i> . . . .	gr. xx-xxx	1.3-2.0	Extracta.
<i>Geum</i> . . . .	gr. xx-3j	1.3-4.0	
<i>Gillenia</i> . . . .	gr. xx-xxx	1.3-2.0	
<i>Glycerina</i> . . . .	f 3j	5.0	Glycerita.
<i>Glycyrrhiza</i> . . . .	.....	.....	Extracta, misturæ, trochisci.
<i>Gossypii radicle cortex</i> . . . .	.....	.....	Extracta.
<i>Granati fructûs cortex</i> . . . .	gr. xx-xxx	1.3-2.0	
<i>"</i> <i>radicle cortex</i> . . . .	gr. xx-xxx	1.3-2.0	
<i>Guaiaci lignum</i> . . . .	.....	.....	Pilulæ, tincturæ.
<i>"</i> <i>resina</i> . . . .	gr. x-xxx	.65-2.0	
<i>Guarana</i> . . . .	gr. xxx-3j	2.0-4.0	
<i>Gutta percha</i> . . . .	.....	.....	Liquores.
<i>Hæmatoxylon</i> . . . .	.....	.....	Decocta, extracta.
<i>Hedeoma</i> . . . .	.....	.....	Olea.
<i>Helianthemum</i> . . . .	3j-ij	4.0-8.0	
<i>Helleborus</i> . . . .	gr. iij-xx	.2-1.3	Extracta, tincturæ.
<i>Heuchera</i> . . . .	gr. v-xx	.3-1.3	
<i>Hordeum</i> . . . .	.....	.....	Decocta.
<i>Humulus</i> . . . .	gr. iij-xx	.2-1.3	Infusa, tincturæ.
<i>Hydrargyri chloridum coor-     rosivum</i> . . . .	gr. $\frac{1}{6}$ - $\frac{1}{8}$	.004-.008	
<i>"</i> <i>chloridum mite</i> . . . .	gr. ss-x	.03-.65	Pilulæ.
<i>"</i> <i>cyanidum</i> . . . .	gr. $\frac{1}{6}$ - $\frac{1}{4}$	.004-.016	[ta.
<i>"</i> <i>iodidum rubrum</i> . . . .	gr. $\frac{1}{6}$ - $\frac{1}{4}$	.004-.016	Liquores, unguen- [ta.
<i>"</i> <i>viride</i> . . . .	gr. j-ijj	.06-.2	
<i>"</i> <i>nitras</i> . . . .	.....	.....	Liquores, unguen-
<i>"</i> <i>oxidum flavum</i> . . . .	.....	.....	Unguenta.
<i>"</i> <i>rubrum</i> . . . .	.....	.....	Unguenta.
<i>"</i> <i>sulphas flava</i> . . . .	gr. $\frac{1}{4}$ -v	.016-.3	
<i>"</i> <i>sulphuretum ru-     brum</i> . . . .	gr. v-xxx	.3-2.0	
<i>Hydrargyrum</i> . . . .	.....	.....	Emplastra, pilulæ, unguenta.
<i>"</i> <i>ammoniatus</i> . . . .	.....	.....	Unguenta.
<i>"</i> <i>cum creta</i> . . . .	gr. iij-xv	.2-1.0	
<i>Hydrastis</i> . . . .	.....	.....	Extracta.
<i>Hyoscyami folia</i> . . . .	gr. v-x	.3-.65	Extracta, tincturæ.
<i>"</i> <i>semen</i> . . . .	gr. ij-v	.13-.3	



Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Ignatia . . . .	.....	.....	Extracta.
Inula . . . .	gr. xx-3j	1.3-4.0	
Iodinium . . . .	.....	.....	Liquores, pilulæ, tincturæ, unguen- ta.
Iodoformum . . . .	gr. j-v	.06-.3	
Ipecacuanha . . . .	gr. j-v	.06-.3	(Emetic dose, gr. xx-xxx.) Extrac- ta, pulveres, syr- upi, trochisci, vina.
Iris versicolor . . . .	gr. x-xx	.65-1.3	
Jalapa . . . .	gr. x-xx	.65-1.3	Extracta, pilulæ, pulveres, tinc- turæ.
Jaborandi . . . .	gr. xl-l	2.6-3.3	Extracta.
Juglans . . . .	gr. x-xxx	.65-2.0	Infusa, olea, spiri- tus.
Juniperus . . . .	3j-ij	4.0-8.0	
Kameela . . . .	3j-ij	4.0-12.0	
Kino . . . .	gr. x-xxx	.65-2.0	Tincturæ.
Krameria . . . .	gr. xx-xxx	1.3-2.0	Extracta, infusa, syruipi, tincturæ. Syrupi.
Lactucarium . . . .	gr. v-xv	.3-1.0	
Lappa . . . .	3j	4.0	
Lavandula . . . .	.....	.....	Olea, spiritus.
Leptandra . . . .	gr. xx-3j	1.3-4.0	
Limon . . . .	.....	.....	Spiritus, syruipi.
Linum . . . .	.....	.....	Infusa.
Liriodendron . . . .	3ss-ij	2.0-8.0	
Lithii carbonas . . . .	gr. ij-vj	.2-.4	
" citras . . . .	gr. v-x	.3-.65	
Lobelia . . . .	gr. v-xx	.3-1.3	Aceta, tincturæ.
Lupulina . . . .	gr. v-x	.3-.65	Extracta, oleores- inæ, tincturæ.
Magnesia . . . .	gr. xx-3j	1.3-4.0	Pulveres, trochisci.
Magnesiæ carbonas . . . .	gr. xxx-3ij	2.0-8.0	
" citras . . . .	.....	.....	Liquores.
" sulphas . . . .	3ss-j	15.5-31.0	
Magnolia . . . .	gr. xxx-3j	2.0-4.0	
Manganesii oxidum ni- grum . . . .	gr. ij-xx	.2-1.3	
" sulphas . . . .	gr. v-xx	.3-1.3	
Manna . . . .	3j-ij	31.0-62.0	
Marrubium . . . .	gr. xxx-3j	2.0-4.0	
Mastiche . . . .	.....	.....	Pilulæ.
Matico . . . .	gr. xxx-3ij	2.0-8.0	Extracta.
Matricaria . . . .	gr. xxx-3j	2.0-4.0	
Mel rosæ . . . .	.....	.....	Mellita.

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
<i>Mentha piperita</i> . . .	.....	.....	Aquæ, olea, spiri- tus, trochisci.
“ <i>viridis</i> . . .	.....	.....	Aquæ, olea, spiri- tus.
<i>Mezereum</i> . . .	gr. x	.65	Extracta, unguen- ta.
<i>Monarda</i> . . .	.....	.....	Olea.
<i>Morphiæ acetæ</i> . . .	gr. $\frac{1}{2}$ — $\frac{1}{3}$	.008—.03	
“ <i>inurias</i> . . .	gr. $\frac{1}{2}$ — $\frac{1}{3}$	.008—.03	
“ <i>sulphas</i> . . .	gr. $\frac{1}{2}$ — $\frac{1}{3}$	.008—.03	Liquores, snpposi- toria, trochisci.
<i>Moschus</i> . . .	gr. x—xx	.65—1.3	
<i>Myristica</i> . . .	.....	.....	Pulveres.
<i>Myrrha</i> . . .	gr. x—xxx	.65—2.0	Pilulæ, tincturæ.
<i>Narceia</i> . . .	gr. j—ij	.06—.13	
<i>Nectandra</i> . . .	gr. ij—v	.13—.8	
<i>Nux vomica</i> . . .	gr. v	.3	Extracta, tincturæ.
<i>Oleum ætherenm</i> . . .	.....	.....	Spiritus.
“ <i>amygdalæ amaræ</i> . . .	$\mathfrak{m} \frac{1}{4}$ — $\frac{1}{2}$	.015—.03	
“ <i>cajuputi</i> . . .	$\mathfrak{m} \frac{1}{2}$ —ij	.06—.18	
“ <i>chenopodii</i> . . .	$\mathfrak{m} \frac{1}{2}$ —vj	.18—.36	
“ <i>morruæ</i> . . .	f3ij—iv	7.5—15.0	
“ <i>olivæ</i> . . .	f3j	30.0	
“ <i>origani</i> . . .	$\mathfrak{m} \frac{1}{2}$ —v	.06—.3	
“ <i>pimentæ</i> . . .	$\mathfrak{m} \frac{1}{2}$ —v	.12—.3	
“ <i>ricini</i> . . .	f3ij—f3iss	7.5—45.0	
“ <i>rosmarini</i> . . .	$\mathfrak{m} \frac{1}{2}$ —v	.12—.3	
“ <i>sesami</i> . . .	f3ij—iv	7.5—15.0	
“ <i>succini rectificæ-</i> tum . . .	$\mathfrak{m} \frac{1}{2}$ —x	.3—.6	
“ <i>terebinthinæ</i> . . .	$\mathfrak{m} \frac{1}{2}$ —f3ss	.3—15.0	
“ <i>tiglii</i> . . .	$\mathfrak{m} \frac{1}{2}$	.06	
<i>Opium</i> . . .	gr. j—ij	.06—.13	Aceta, extracta, confectiones, em- plastra, pilulæ, pulveres, supp s- itoria, tincturæ, trochisci, vina.
<i>Origanum</i> . . .	.....	.....	Olea.
<i>Parvira</i> . . .	gr. xxx—3j	2.0—4.0	Extracta, infusa.
<i>Pepsina</i> . . .	gr. v—x	.3—.6	
<i>Phosphorus</i> . . .	gr. $\frac{1}{10}$ — $\frac{1}{20}$	.0013—.002	
<i>Physostigma</i> . . .	gr. ij	.13	Extracta.
<i>Phytolacæ radix</i> . . .	gr. ij—xxx	.13—2.0	
<i>Pimenta</i> . . .	gr. x—xl	.6—2.6	Olea.
<i>Piper</i> . . .	gr. v—xx	.3—1.3	Oleoresinæ.
<i>Piperina</i> . . .	gr. j—vj	.06—.4	
<i>Pix Burgundica</i> . . .	.....	.....	Emplastra.

Name.	Dose.	Approximate metric dose. (Grammea.)	Official preparations.
Pix Canadensis . . .	.....	.....	Emplastra.
" liquida . . . . .	.....	.....	Glycerita, infusa, unguenta.
Plumbi acetat . . .	gr. j-ij	.06-.2	Suppositoria.
" carbonas . . . . .	.....	.....	Unguenta.
" iodidum . . . . .	gr. ½-ij	.016-.13	Unguenta.
" subacetat . . . . .	.....	.....	Cerata, linimenta, liquores.
" oxidum . . . . .	.....	.....	Emplastra.
Podophyllum . . . .	gr. ½-j	.008-.06	Extracta.
Podophyllum . . . .	gr. xx	1.3	Liquores.
Potassa . . . . .	.....	.....	Liquores.
Potassii acetat . . .	3j-iv	4.0-15.5	Liquores.
" arseniat . . . . .	.....	.....	Liquores.
" bichromat . . . . .	gr. ¼-½	.016-.05	Liquores.
" bicarbonat . . . .	gr. x-3j	.65-4.0	Pulveres.
" bitartrat . . . . .	3j-3ss	4.0-16.0	Pulveres.
" bromidum . . . . .	gr. v-xx	.3-1.3	Pulveres.
" carbonat . . . . .	gr. x-xxx	.65-2.0	Pulveres.
" " pura . . . . .	gr. x-xxx	.65-2.0	Pulveres.
" chlorat . . . . .	gr. xv-xxx	1.0-2.0	Trochisci.
" citrat . . . . .	gr. xx-xxx	1.3-2.0	Liquores, misturæ.
" cyanidum . . . . .	gr. ½	.008	Liquores, misturæ.
" ferrocyanidum . . .	gr. x-xv	.65-1.0	Liquores, misturæ.
" hypophosphit . . .	gr. x-xxx	.65-2.0	Liquores, misturæ.
" iodidum . . . . .	gr. v-xv	.3-1.0	Liquores, misturæ.
" nitrat . . . . .	gr. x-xxx	.65-2.0	Liquores, misturæ.
" permanganat . . . .	.....	.....	Liquores.
" et sodii tartrat . .	3ss-j	15.5-31.0	Pulveres.
" sulphat . . . . .	3ss-3ss	2.0-15.5	Pulveres.
" sulphit . . . . .	gr. xx-3j	1.3-4.0	Pulveres.
" sulphuretum . . . .	gr. ij-x	.2-.65	Pulveres.
" tartrat . . . . .	3j-3j	4.0-31.0	Pulveres.
Prinos . . . . .	gr. xxx-3j	2.0-4.0	Extracta, infusa, sympi.
Pruus Virginiana . .	gr. xxx-3j	2.0-4.0	Extracta, infusa, sympi.
Pyrethrum . . . . .	gr. xxx-3j	2.0-4.0	Extracta, infusa, tincturæ.
Quassia . . . . .	gr. xx-3j	1.3-4.0	Decocta.
Quercus alba . . . .	gr. xxx-3j	2.0-4.0	Decocta.
" tinctoria . . . . .	gr. xxx-3j	2.0-4.0	Decocta.
Quiniæ sulphat . . .	gr. ij-xv	.13-1.0	Pillulæ.
" valerianas . . . .	gr. j-ij	.06-.2	Pillulæ.
Resina . . . . .	.....	.....	Cerata, emplastra, resinæ.
" jalapæ . . . . .	gr. iv-vij	.26-.5	Cerata, emplastra, resinæ.
" podophylli . . . . .	gr. ½-j	.008-.06	Cerata, emplastra, resinæ.

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Rheum . . . .	gr. v-xx	.3-1.3	Extracta, infusa, pilulæ, pulveres, syropi, tincturæ, vina.
Rosmarinum . . . .	.....	.....	Olea.
Rosa . . . .	.....	.....	Aquæ, infusa, con- fectiones, mellita, syropi, unguenta.
Rubia . . . .	gr. xxx	2.0	
Rubus . . . .	gr. xx-xxx	1.3-2.0	Extracta, syropi.
Rumex . . . .	ʒj-ij	4.0-8.0	
Ruta . . . .	gr. xv-xxx	1.0-2.0	Olea.
Sabadilla . . . .	gr. v-xx	.3-1.3	
Sabbatia . . . .	gr. xxx-ʒj	2.0-4.0	
Sabina . . . .	gr. v-xv	.3-1.0	Extracta, cerata, olea.
Saccharum . . . .	.....	.....	Syrupi.
Salicina . . . .	gr. ij-vlij	.13-.5	
Salix . . . .	gr. xv-ʒj	1.0-4.0	
Salvia . . . .	gr. xx-xxx	1.3-2.0	Infusa.
Sambucus . . . .	ʒj-ʒss	4.0-15.5	
Sanguinaria . . . .	gr. x-xx	.65-1.3	Aceta, tincturæ.
Santonica . . . .	gr. x-xxx	.65-2.0	
Santoninum . . . .	gr. ij-iv	.13-.26	Trochisci.
Sapo . . . .	.....	.....	Cerata, emplastra, linimenta, pilulæ.
Sarsaparilla . . . .	gr. xxx	2.0	Decocta, extracta, syropi.
Sassafras . . . .	.....	.....	Mucilagines, olea.
Scammonium . . . .	gr. v-xx	.3-1.3	
Scilla . . . .	gr. j-ijj	.06-.2	Aceta, extracta, pi- lulæ, syropi, tinc- turæ.
Scoparia . . . .	gr. x-xv	.65-1.0	
Scutellaria . . . .	gr. xxx ʒj	2.0-4.0	
Senega . . . .	gr. x-xx	.65-1.3	Decocta, extracta, syropi.
Senna . . . .	gr. xxx-ʒij	2.0-8.0	Extracta, infusa, confectiones, syr- upi, tincturæ.
Serpentaria . . . .	gr. x-xxx	.65-2.0	Extracta, infusa, tincturæ.
Simaruba . . . .	gr. xx-ʒj	1.3-4.0	
Sinapis alba . . . .	ʒj	4.0	
" nigra . . . .	ʒj	4.0	Chartæ.
Soda . . . .	.....	.....	Liquores.
" chlorinata . . . .	.....	.....	Liquores.
Sodii acetat . . . .	gr. xx-ʒij	1.3-8.0	

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Sodii arsenias . . .	gr. $\frac{1}{2}$ - $\frac{1}{4}$	.005-.016	Liquores.
" bicarbonas . . .	gr. x-3j	.65-4.0	Pulveres, trochisci.
" boras . . .	gr. xxx-xl	2.0-2.6	Glycerita, mellita.
" carbonas . . .	gr. x-xxx	.65-2.0	Pilulæ.
" " exsiccata . . .	gr. v-xv	.3-1.0	
" chloridum . . .	gr. xx-3j	1.3-31.0	
" hypophosphis . . .	gr. x-xxx	.65-2.0	
" hyposulphis . . .	gr. x-xx	.65-1.3	
" nitras . . .	gr. x-xxx	.65-2.0	
" phosphas . . .	gr. xxx-3j	2.0-31.0	
" sulphas . . .	3ss-3j	15.5-31.0	
" sulphis . . .	gr. x-3j	.65-4.0	
" salicylas . . .	gr. xv-3j	1.0-4.0	
Spigelia . . .	3j-ij	4.0-8.0	Extracta, infusa.
Spirea . . .	gr. v-xv	.3-1.0	
Statice . . .	gr. x-xxx	.65-2.0	
Stillingia . . .	gr. xv-xxx	1.0-2.0	Extracta.
Stramonii folia . . .	gr. ij	.13	Extracta.
" semen . . .	gr. j	.06	Extracta, tincturæ, unguenta.
Strychnia . . .	gr. $\frac{1}{2}$ - $\frac{1}{4}$	.012-.005	
Strychniæ sulphas . . .	gr. $\frac{1}{2}$ - $\frac{1}{4}$	.002-.005	
Styrax . . .	gr. x-xx	.65-1.3	
Succinum . . .	.....	.....	Olea.
Sulphur lotum . . .	3j-ijj	4.0-12.0	
" præcipitatum . . .	3j-ijj	4.0-12.0	
" sublimatum . . .	3j-ijj	4.0-12.0	Unguenta.
Sulphuris iodidum . . .	gr. $\frac{1}{2}$ - $\frac{1}{4}$	.003-.006	Unguenta.
Tabacum . . .	.....	.....	Olea, unguenta, vina.
Tanacetum . . .	gr. xxx-3j	2.0-4.0	
Taraxaci succus . . .	3j-iv	8.0-15.5	
Taraxacum . . .	.....	.....	Extracta, infusa.
Terebinthina . . .	gr. xx-3j	1.3-4.0	Collodium, lini- menta.
Testa præparata . . .	gr. x-3j	.65-4.0	
Theina . . .	gr. j-ijj	.06-.2	
Tolu . . .	.....	.....	Syrupi, tincturæ.
Tormentilla . . .	gr. xxx-3j	2.0-4.0	
Toxicodendron . . .	gr. ss-j	.03-.06	
Tragacantha . . .	.....	.....	Mucilagines.
Triosteum . . .	gr. xx-xxx	1.3-2.0	
Ulmus . . .	.....	.....	Mucilagines.
Uva ursi . . .	gr. xx-3j	1.3-4.0	Decocta, extracta.
Valeriana . . .	gr. xxx-3ss	2.0-6.0	Extracta, infusa, olea, tincturæ.
Veratria . . .	gr. $\frac{1}{2}$ - $\frac{1}{4}$	.004-.008	Unguenta.
Veratrum album . . .	gr. j-ij	.06-.13	

Name.	Dose.	Approximate metric dose. (Grammes.)	Official preparations.
Veratrum viride . . .	gr. j	.06	Extracta, tincturæ.
Xanthorrhiza . . .	gr. xx-xl	1.3-2.6	
Xanthoxylum . . .	gr. x-xxx	.65-2.0	
Zinci acetat . . .	gr. ij-iv	.13-.26	
“ carbonas præcipitata . . .	.....	.....	Cerata.
“ chloridum . . .	gr. j	.06	Liquores.
“ oxidum . . .	gr. ij-x	.13-.65	Unguenta.
“ sulphas . . .	gr. j-ij	.06-.13	(Emetic dose, gr. x-xxx.)
“ valerianas . . .	gr. j-ij	.06-.13	Extracta, infusa, oleoresinæ, pul- veres, syrupi, tincturæ, troch- isci.
Zingiber . . .	gr. x-xx	.65-1.3	

### Maximum Doses.

The following table, based on that of the Pharmacopœia Germanica,<sup>1</sup> exhibits the maximum doses of the potent remedial agents mentioned, and beyond which physicians in Germany are not allowed to prescribe unless they add the caution mark (!), thereby indicating that such a large dose is intentionally ordered.<sup>2</sup> It must not be forgotten that maximum doses are exceptional ones, not to be prescribed without due consideration, as they are generally beyond the ordinary doses to which the practitioner is accustomed.

The table is arranged in grammes, and their equivalent in grains, or, in the case of liquids, in minims, etc. :—

<sup>1</sup> Dr. Hermann Hager, *Commentar zur Pharmacopœia Germanica*, Berlin, 1874, ii. 910.

<sup>2</sup> Dorvault, *L'Officine*, cites a slightly different maximum dose for some of the agents named. It will be noticed that the German doses

	Maximum single dose.		Total maximum dose in 24 hours.	
	Grammes.	Grains.	Grammes.	Grains.
Acetum colchici . . . . .	2.0	m30	6.0	m96
Acidum arseniosum . . . . .	0.005	$\frac{1}{15}$	0.01	$\frac{1}{8}$
“ carbolicum (crystal.) . . . .	0.05	$\frac{1}{2}$	0.15	2 $\frac{1}{2}$
“ hydrocyanicum dilutum . . . .	0.05	m1	0.20	m4
Aconitum . . . . .	0.004	$\frac{1}{25}$	0.03	$\frac{1}{15}$
Ammonii bromidum . . . . .	3.0	45	10.0	154
“ iodidum . . . . .	0.5	7 $\frac{1}{2}$	2.5	38.5
Antimonii et potassii tartaras . .	0.2	3	1.0	15
Apomorphiæ murias . . . . .	0.015	$\frac{1}{4}$	0.05	$\frac{3}{4}$
Aqua amygdalæ amaræ . . . . .	2.0	m30	7.0	m105
Argenti nitras . . . . .	0.03	$\frac{1}{3}$	0.2	3
Arsenici iodidum . . . . .	0.02	$\frac{1}{2}$	0.05	$\frac{3}{4}$
Atropia . . . . .	0.001	$\frac{1}{25}$	0.003	$\frac{1}{15}$
Atropiæ sulphas . . . . .	0.001	$\frac{1}{25}$	0.0.3	$\frac{1}{25}$
Auri et sodii chloridum . . . . .	0.06	$\frac{2}{5}$	0.2	3
Barii chloridum . . . . .	0.12	1 $\frac{1}{2}$	1.5	23
Belladonnæ folia . . . . .	0.2	3	0.6	9
“ radix . . . . .	0.1	1 $\frac{1}{2}$	0.4	6
Bismuthi subnitras . . . . .	0.3	4 $\frac{1}{2}$	1.5	23

are in a number of instances larger than those given by the French authority.

	Grammes.	Grains.
Aqua laurocerasi . . . . .	2.00	m30
Argenti nitras . . . . .	0.02	$\frac{1}{5}$
Belladonnæ radix (pulv.) . . . .	0.15	2 $\frac{1}{2}$
Colocyntsis . . . . .	0.10	1 $\frac{1}{2}$
Digitalis folia . . . . .	0.20	3
Hydrargyri cyanidum . . . . .	0.02	$\frac{1}{5}$
Hyoscyami folia . . . . .	0.20	3
Nux vomica . . . . .	0.10	1 $\frac{1}{2}$
Opium . . . . .	0.05	$\frac{3}{4}$
Phosphorus . . . . .	0.01	$\frac{1}{8}$
Potassii arsenias . . . . .	0.005	$\frac{1}{15}$
Potassii cyanidum . . . . .	0.03	$\frac{1}{15}$
Scillæ radix . . . . .	0.20	3
Sodii arsenias . . . . .	0.005	$\frac{1}{15}$
Toxicodendron . . . . .	0.30	4 $\frac{1}{2}$
Veratria . . . . .	0.01	$\frac{1}{8}$
Zinci sulphas . . . . .	0.15	2 $\frac{1}{2}$

	Maximum single dose.		Total maximum dose in 24 hours.	
	Grammes.	Grains.	Grammes.	Grains.
Brucia . . . . .	0.1	1½	0.3	4½
Caffeina . . . . .	0.15	2½	0.6	9
Cantharides . . . . .	0.05	¾	0.15	2½
Chloral . . . . .	4.0	61	8.0	123
Codeinum . . . . .	0.05	¾	0.1	1½
Colchicia . . . . .	0.005	⅞	0.02	⅓
Conia . . . . .	0.001	⅛	0.003	⅜
Conii herba . . . . .	0.3	4½	2.0	30
Creasotum . . . . .	0.05	⅞	0.2	⅓
Croton chloral . . . . .	1.5	23	5.0	77
Cupri acetat . . . . .	0.1	1½	0.4	6
“ sulphas . . . . .	0.1	1½	0.4	6
“ “ in divided doses as an emetic . . . . .	1.0	15	...	...
Cupri et ammonii sulphas . . . . .	0.1	1½	0.4	6
Digitalinum . . . . .	0.005	⅞	0.02	⅓
Digitalis folia . . . . .	0.3	4½	1.0	15
Ferri iodidum . . . . .	0.5	7½	3.0	45
Hellebori viridis radix . . . . .	0.3	4½	1.2	18
Hydrargyri cyanidum . . . . .	0.02	⅓	0.06	⅞
“ chloridum corrosivum . . . . .	0.03	⅞	0.1	1½
“ iodidum rubrum . . . . .	0.03	⅞	0.1	1½
“ “ viride (flavum) . . . . .	0.06	⅞	0.4	6
“ oxidum nigrum . . . . .	0.25	3¾	1.0	15
“ “ rubrum . . . . .	0.03	⅞	0.1	1½
Hyoscyami folia . . . . .	0.3	4½	1.0	15
“ semen . . . . .	0.3	4½	1.2	18
Iodoformum . . . . .	0.3	4½	1.5	23
Lactucarium . . . . .	0.03	⅞	1.2	18
Liquor potassii arsenitis . . . . .	0.4	⅞	2.0	⅓
Morphia . . . . .	0.03	⅞	0.12	1¾
Morphiæ acetat . . . . .	0.03	⅞	0.12	1¾
“ murias . . . . .	0.03	⅞	0.12	1¾
“ sulphas . . . . .	0.03	⅞	0.12	1¾
Oleum tiglii . . . . .	0.06	⅞	0.3	⅓
Opium . . . . .	0.15	2½	0.5	7½
Phosphorus . . . . .	0.015	¼	0.06	⅞
Plumbi acetat . . . . .	0.06	⅞	0.4	6



	Maximum single dose.		Total maximum dose in 24 hours.	
	Grammes.	Grains.	Grammes.	Grains.
Podophyllum . . . . .	0.1	1½	0.5	7½
Potassii bromidum . . . . .	5.0	77	15.0	231
“ iodidum . . . . .	2.0	30	8.0	123
Resina jalapæ . . . . .	1.0	15	3.0	45
“ scammonii . . . . .	1.0	15	3.0	45
Sabadillæ fructus . . . . .	0.25	3¾	1.0	15
Santonium . . . . .	0.1	1½	0.5	7½
Stramonii folia . . . . .	0.25	3¾	1.0	15
“ semen . . . . .	0.25	3¾	1.0	15
Strychnia¹ . . . . .	0.01	⅙	0.03	⅙
Strychniæ nitras¹ . . . . .	0.01	⅙	0.03	⅙
Syrupus ferri iodidi . . . . .	7.5	m 90	30.0	360
Toxicodendri folia . . . . .	0.4	6	1.2	18
Veratri rhizoma . . . . .	0.3	4½	1.2	18
Veratria . . . . .	0.005	⅙	0.03	⅙
Vinum colchici . . . . .	2.0	m 30	6.0	m 90
Zinci acetat . . . . .	1.5	23	3.0	46
“ chloridum . . . . .	0.015	¼	0.1	1½
“ lactas . . . . .	0.06	⅙	0.3	4½
“ sulphas . . . . .	0.06	⅙	0.3	4½
“ “ in divided doses as				
an emetic . . . . .	1.2	18	...	...
“ valerianas . . . . .	0.06	⅙	0.3	4½

Having thus studied the doses of the various remedial articles in the practitioner's armamentarium, as usually administered through the channel of the stomach, we are now prepared to examine into the posological features characteristic of the same agents when administered through other surfaces or media, such as the skin, air-passages, rectum, vagina, uterus, and urethra, including a reference also to certain local applications, as gargles, eye-washes, etc. These topics will be discussed in continuation of the general subject of Doses.

¹ The doses of strychnia and its nitrate seem unusual and excessive (see table of doses, page 90).

**Doses of Medicines administered Hypodermically.**

The severity of the symptoms must be the main guide to the practitioner as to the quantity of the remedial agent he may desire to administer by subcutaneous injection. It is expedient, however, that he should be familiar with the doses given by this channel. As a general rule, and when not otherwise mentioned, distilled water is the menstruum employed, and extreme care should be taken that the solution is perfect, free from foreign or irritating substances, neither acid nor alkaline, prepared by the practitioner himself, fresh when used, and filtered. Dr. Joseph G. Richardson<sup>1</sup> has proposed the employment of salicylic acid for the prevention of fungous growths in solutions for hypodermic medication, especially those containing morphia.

The chief articles administered in this way are arsenic, atropia, caffeine, conia, ergotine, hydrocyanic acid, mercurial preparations, morphia, nicotia, physostigma, quinia, and strychnia.<sup>2</sup>

**ARSENIC.**—The *liquor sodii arseniatis* is less irritating than Fowler's solution; five, ten, or fifteen minims may be injected every alternate day.

*Arsenious acid* has been injected in solution in doses of one to two centigrammes (gr.  $\frac{1}{8}$ – $\frac{1}{4}$ ) with good results.

**ATROPIA, SULPHATE OF.**—The following strengths of solutions have been employed: gr.  $\frac{1}{4}$  to f3j, of which m v = gr.  $\frac{1}{8}$ ; gr. ss to f3j, of which m liiss = gr.  $\frac{1}{8}$ ; gr. j to f3j, of which m j = gr.  $\frac{1}{6}$ .

<sup>1</sup> N. Y. Medical Record, Sept. 30, 1876.

<sup>2</sup> Roberts Bartholow, *Manual of Hypodermic Medication*, 2d edit., Philada., 1873; from which work many of the doses and formulæ of the various articles are quoted, and to which the reader is referred for their numerous therapeutic applications.

A safe subcutaneous dose of sulphate of atropia is gr.  $\frac{1}{16}$ . Children are less susceptible than adults, men than women. Atropia and morphia are often given together on account of their antagonistic toxic effects. (See Morphia.)

CAFFEIN.—The subcutaneous dose is gr. j, which may be administered as follows:—

R. Caffeinæ puræ, gr. vj;  
 Spiritûs vini rectificati,  
 Aquæ destillatæ, āā f3j.—M.

Of this solution, ℥ xx = gr. j, the proper dose.

Or the citrate of caffein gr. j may be added to gtt. xxiv of pure glycerine.

CONIA.—The following formula has been proposed:—

R. Coniæ, gr. j;  
 Spiritûs vini rectificati, f3ss;  
 Aquæ destillatæ, f3iss.—M.

Of this solution ℥ j = gr.  $\frac{1}{12}$ , and the hypodermic dose would be ℥ j-ij. The solution decomposes easily, and should therefore be freshly prepared.

ERGOTIN.—This substance may be administered subcutaneously as follows:—

R. Ergotinæ, gr. ij;  
 Spiritûs vini rectificati,  
 Glycerinæ puræ, āā f3ss.—M.

Of this solution, ℥ v = gr.  $\frac{1}{4}$ .

A less irritating solution may be made by adding to 3 parts of ergotin, 7.5 parts each of glycerine and distilled water.

HYDROCYANIC ACID (DILUTE).—A safe dose is ℥ ij, which should not, as a rule, be exceeded.

**MERCURY.**—Soluble preparations are alone used.

*Corrosive sublimate* is administered in the proportion of a grain to the ounce of distilled water, of which solution,  $\mathfrak{m} \text{ x} = \text{gr. } \frac{1}{4}\text{s}$ , a safe and usually sufficient dose.

Or, according to Liégeois :<sup>1</sup>—

R. Hydrargyri chloridi corrosivi, gr. iij;  
Morphiæ sulphatis, gr. iss;  
Aquæ destillatæ, f̄3iij.—M.

Of this solution,  $\mathfrak{m} \text{ xv} = \text{gr. } \frac{1}{3}\text{s}$ , an appropriate quantity for a single injection.

It may also be given in an unirritating albuminous solution of corrosive sublimate in alkaline chlorides:—

R. Hydrargyri chloridi corrosivi,  
Ammonii chloridi, āā gr. viij;  
Sodii chloridi, gr. xxx;  
Aquæ destillatæ, f̄3ss.—M.

Filter and add to a solution of the white of one egg in water sufficient to make f̄3iv. Of this solution,  $\mathfrak{m} \text{ v}$  contain gr.  $\frac{1}{4}\text{s}$  of the corrosive chloride of mercury.

Lewin<sup>2</sup> employs in the treatment of syphilis three different strengths of solutions, gr. ij, iv, and vj to f̄3j of distilled water; the one of medium strength being that usually resorted to. Morphia, gr.  $\frac{1}{10}-\frac{1}{8}$ , may be added to relieve the pain attending the application. The smallest subcutaneous dose of corrosive sublimate used by him in these cases is gr.  $\frac{1}{10}$ , the largest gr.  $\frac{3}{8}$ .

The *iodide of mercury and sodium* is also used where a mercurial is indicated. in the proportion of gr. viij to

<sup>1</sup> Bulletin Général de Thérapeutique, Aug. 30, 1869.

<sup>2</sup> Treatment of Syphilis with Subcutaneous Sublimate Injections; Philada., 1873.

f3j, of which 10 minims, usually a sufficient dose, are equal to gr.  $\frac{1}{4}$ .

MORPHIA.—The *acetate* may be dissolved with a minimum of acetic acid, in hot distilled water, in the proportion of gr. v to f3j, of which  $\mathfrak{m}j = \text{gr. } \frac{1}{12}$ . In severe pain,  $\mathfrak{m}ij$  may be administered.<sup>1</sup>

*Muriate of morphia* may be administered in the strength of gr. iv to f3j, or gr. x to f3ij; according to Lawson,<sup>2</sup> a solid preparation requiring heat to dissolve it. Two minims are equivalent to gr.  $\frac{1}{4}$ . The British Pharmacopœia has a formula for its subcutaneous injection, the strength being gr. v to f3j, of which  $\mathfrak{m}j = \text{gr. } \frac{1}{12}$ .

*Sulphate of morphia* is preferable in the proportion of gr. ij to f3j; the subcutaneous dose being gr.  $\frac{1}{12} - \frac{1}{2}$ , the smaller dose being the best to commence with. The dose for children, in whom it is seldom employed hypodermically, is gr.  $\frac{1}{80}$  to  $\frac{1}{10}$ .

When morphia and atropia are combined, a larger quantity of the former is borne without inconvenience. A solution may be made, in which  $\mathfrak{m}v = \text{gr. } \frac{1}{4}$  of morphia and gr.  $\frac{1}{8}$  of atropia. Morphia gr.  $\frac{1}{4}$  may be safely injected with gr.  $\frac{1}{8}$  or  $\frac{1}{4}$  of atropia, on account of their mutual antagonism.

NICOTIA.—This may be prescribed in a solution of gr.  $\frac{1}{4}$  to f3j of water, of which  $\mathfrak{m}iv = \text{gr. } \frac{1}{80}$ , the proper subcutaneous dose.

PHYSOSTIGMA.—The extract is given in the proportion of gr. ij to f3j, of which  $\mathfrak{m}x = \text{gr. } \frac{1}{3}$ , the proper dose with which to commence its employment hypodermically.

<sup>1</sup> Anstie, Practitioner, July, 1868, p. 37.

<sup>2</sup> Sciatica, Lumbago, and Brachialgia, their Nature and Treatment; London, 1872.

QUINIA.—The sulphate may be administered as follows:—

R. Quiniæ sulphatis, ℥j;  
Acidi sulphurici diluti, ℥ xl;  
Aquæ destillatæ, f℥j.—M.

Of this solution ℥ xv—xxx is the dose.

A solution of the sulphate of quinia, gr. viij in ether f℥j, has also been proposed, but this soon decomposes by evaporation of the ether.

STRYCHNIA.—The sulphate is used in the proportion of gr. ij to f℥j, of which ℥ v = gr.  $\frac{1}{8}$ ; or gr. ij to f℥ij, of which ℥ j = gr.  $\frac{1}{16}$ . The maximum dose is gr.  $\frac{1}{4}$ , but a smaller dose, as gr.  $\frac{1}{8}$  to  $\frac{1}{16}$ , is safer, and therefore preferable.

#### Doses of Atomized Fluids for Inhalation.

In the treatment of certain diseases of the throat and respiratory organs, the introduction of atomized or pulverized fluids—in other words, of solutions of various medicinal substances in the form of spray—has been highly extolled. It would doubtless be employed more frequently as a remedial process if the practitioner was more generally informed as to the appropriate strength of the solution, which is to be thrown as spray upon the morbid surface. Supposing that he is already in possession of the proper spray-apparatus, the following table will give an idea of the doses in which the remedies may be resorted to:—

Acidum carbolicum, gr. i-ij.	Ammonii chloridum, gr. v-lx.
“ hydrocyanicum dilutum, ℥ ij.	Aqua laurocerasi, ℥ v-xx.
“ lacticum, ℥ xxx.	Argenti nitras, gr. i-x.
“ sulphureosum, f℥ij-vij.	Cupri sulphas, gr. i-vj.
“ tannicum, gr. iij-xx.	Extractum belladonnæ, gr. $\frac{1}{2}$ -j.
Alumen, gr. v-xxx.	“ cannabis Indicæ, gr. $\frac{1}{2}$ -ij.
“ exsiccatum, gr. iij-xx.	“ conii, gr. v-x.

Extractum conii fluidum, ℥ iij-viij.	Morphiæ acetat, gr. ʒi-ʒ.
“ hyoscyami fluidum, ℥ iij-x.	“ sulphas, gr. ʒi-ʒ.
“ opii, gr. ss-v.	Oleum terebinthinae, ℥ i-v.
“ aquosum, gr. ʒi-ʒ.	Plumbi acetat, gr. ij-vj.
Ferri et ammonii sulphas, gr. iij-vj.	Potassii bromidum, gr. ij-x.
“ subsulphas (Monsel's salt), gr. ss-x.	“ carbonas, gr. x-3ij.
“ perchloridum, gr. ʒi-ij.	“ chloras, gr. v-xv.
“ sulphas, gr. i-ij.	“ iodidum, gr. ij-x.
Glycerina, q. s.	“ permanganas, gr. ij-iv.
Hydrargyri chloridum corrosivum, gr. ʒi-ʒ.	Quinæ sulphas, gr. ʒi-ij.
Liquor calcis, f3j-ij.	Soda chlorinata, ʒss-j.
“ “ saccharatus, f3j-iv.	Sodii boras, gr. v-xx.
“ ferri subsulphatis, grt. x-xx.	“ chloridum, gr. v-xl.
“ iodinii compositus, ℥ ij-xv.	Tinctura cannabis Indiciæ, ℥ v-x.
“ picis, f3j-ij.	“ ferri perchloridi, ℥ v-xxx.
“ potassii arsenitis, ℥ iij-xv.	“ iodinii, ℥ iij-xv.
“ sodæ chlorinatæ, ℥ xxx-lx.	“ “ composita, ℥ x-xxx.
	“ opii, ℥ iij-xx.
	Zinci sulphas, gr. iij-x.

### Doses of Medicines in the form of Gargles.

The following list furnishes the practitioner a convenient guide to the selection of appropriate local applications in affections of the mouth and throat, in which they are indicated, and suggests the desirable strength of each. No rules are here deemed necessary, as he is supposed to be already familiar with the therapeutic virtues of the remedies to be employed.

The quantity specified for each article is for a *pint* of water, in direct solution, or decoction, etc., according to the degree of solubility:—

Acetum, f3j-iv.	Catechu, ʒss.
Acidum carbolicum, gr. xl-3ij.	Chloroformum, f3j-ij.
“ muriaticum, f3j.	Creasotum, ℥ xl-f3j.
“ nitricum, ℥ xxx-xl.	Cupri sulphas, gr. xx.
“ salicylicum, gr. xl-3j.	Cuprum ammoniatum, gr. xx.
“ sulphuricum, ℥ x-xx.	Extractum cubebæ fluidum, f3ss-j.
“ tannicum, gr. xl-3j.	“ gallæ fluidum, f3ss-j.
Alumen, ʒss-j.	“ granati fluidum, f3ss-j.
“ exsiccatum, 3ij-ijj.	“ krameriæ fluidum, f3ss-j.
Ammonii chloridum, 3ij-iv.	“ quercûs albæ fluidum, f3ss-j.
Aqua ammoniæ, f3ss.	“ xanthoxyli fluidum, f3ss-j.
“ chlorinii, f3j.	
Calx chlorinata, 3j-ijj.	
Capsicum, 3iij-vj.	

Gallæ, ʒij.	Salvia, ʒj.
Hydragryi chloridum corrosivum, gr. iv-v.	Sodii boras, ʒiij-vj.
“ cyanidum, gr. x. to Oj of barley water.	“ chloras, ʒiij-vj
Infusum cinchonæ compositum, q. s.	“ hyposulphis, ʒiiss-ij.
Kino, ʒ-s.	“ sulphis, ʒj-ij.
Liquor ammonii acetatis, fʒij.	Tinctura capsici, fʒj.
“ plumbi subacetatis, mxxx.	“ catechu, fʒj.
“ sodæ chlorinatæ, fʒss-j.	“ cinchonæ composita, fʒj.
Plumbi acetas, ʒij.	“ cubebæ, fʒj.
Potassii chloras, ʒss-j.	“ ferri chloridi, fʒss-j.
“ nitras, ʒj.	“ gallæ, fʒss-j.
“ permanganas, gr. xxx-ʒj.	“ iodinii, fʒij-iv.
Quercus alba, ʒj.	“ kino, fʒss-j.
Quiniæ sulphas, gr. xx-xxx.	“ krameris, fʒss-j.
	“ myrrhæ, fʒj-ij.
	Zinci sulphas, gr. xxx-ʒij.

Many of the above-mentioned solutions may also be appropriately employed as *mouth washes* in various pathological conditions of that cavity. It may be desirable, in order to render them more agreeable for such local application, to incorporate with them additional flavoring materials, such as mel boracis, etc., or to combine several ingredients in the same prescription.

#### Doses of Medicines for Collyria or Eye-washes.

In ophthalmic medication much greater delicacy is of course required in the selection of the appropriate agents and their doses. The following list will facilitate the practitioner in the choice of a remedy and also indicate to him the usual dose in which it is to be prescribed.

The solution is in distilled water, preferably rose-water, in a *fluidounce* of which the quantity specified is to be dissolved, unless otherwise stated:—

Acetum, q. s.	Argenti nitras, gr. j-iiij.
Acidum hydrocyanicum dilutum, m v-x.	Atropiæ sulphas, gr. ʒ-ij.
“ tannicum, gr. ij-x.	Auri chloridum, gr. ʒ.
Alumen, gr. ij-viiij.	Barii chloridum, gr. x.
“ exsiccatum, gr. j-iv.	Cadmii sulphas, gr. j-iiij.
Ammonii chloridum, gr. ij-x.	Calx chlorinata, gr. j-iiij.
Aqua camphoræ, fʒvj to fʒij liquor ammonii acetatis.	Conia, gtt. j-iiij.
“ rosæ, q. s.	Creasotum, gtt. j-iiij.
	Cupri sulphas, gtt. j-iiij.
	Cydonium (in infusion), q. s.



Extractum belladonæ, gr. ij-iv.	Potassii iodidum, gr. iiij ; iodinium,
“ opii, gr. ij-v.	gr. j.
Ferri sulphas, gr. j-iiij.	Sassafras medulla (in infusion), q.s.
Glycerina, q. s.	Sodii boras, gr. x-xv.
Hydrargyri chloridum corrosivum,	“ chloridum, gr. j-v.
gr. ss.	Strychnia, gr. ij.
Liquor ammonii acetatis, fʒss with	Tinctura aconiti, ℥v-xx.
fʒss of rose-water.	“ arnicæ, ℥v-xxx.
“ plumbi subacetatis, ℥x.	Vinum antimoniij, fʒj.
Morphiæ murias, gr. j-ij.	“ opii, fʒj.
“ sulphas, gr. j-ij.	Zinci acetat, gr. j-ij.
Plumbi acetat, gr. j-v.	“ iodidum, gr. j-ij.
Potassii carbonas, gr. ij-vj.	“ oxidum, gr. vj-x.
“ chloras, gr. v-xv.	“ sulphas, gr. ij-x.
“ iodidum, gr. vj-viiij.	

### Doses of Medicines for Injection into the Urethra.

The quantity mentioned is intended for solution in a *fluidounce* of distilled water.

Acidum carbolium, gtt. ss-ij.	Hydrargyri chloridum corrosivum,
“ hydrocyanicum dilutum,	gr. x (inject fʒj).
gtt. j-ij.	Kino, gr. ij-iv.
“ nitricum, gtt. ij-iiij.	Liquor calcis, q. s.
“ tannicum, gr. iiij-v.	“ plumbi subacetatis, ℥x-xv.
Argenti nitras, gr. ss-x.	Morphiæ acetat, gr. iss-ij.
Copaiba, ℥xv ; mucilago acaoiæ,	“ sulphas, gr. iss ij.
fʒss ; aqua calcis ad fʒj.	Opium, gr. iss-ij.
Creasotum, gtt. ss-ij.	Plumbi acetat, gr. v-xx.
Cubeba, gr. xxx.	Potassii chloras, gr. vj-viiij.
Cupri sulphas, gr. j.	“ sulphuretum, gr. v.
Cuprum ammoniatum, gr. ss.	Zinci acetat, gr. j-ij.
Ergota, gr. xxx.	“ chloridum, gr. j-ij.
Ferri iodidum, gr. ss.	“ sulphas, gr. iiij-x.

### Doses of Medicines for Injection into the Vagina.

The amount mentioned is intended for solution in a *pint* of water, unless otherwise stated. In gonorrhœa of the female, many of the solutions already mentioned under “Urethral Injections,” which may not be repeated in this place, are also applicable, as a general rule, for vaginal injection, but the proportion of the active ingredient, and especially the quantity of solution employed, must be increased.

Acidum carbolium, ℥ss-j.	Ferri sulphas, gr. xxx-ij.
" gallicum, gr. xx-3j.	" et ammonii sulphas, 3j.
" salicylicum, 3j.	Galla, 3j.
" tannicum, gr. xx-3j	Kino, ℥ss.
Alumen, 3j-iv.	Krameria, ℥ss.
Ammonii chloridum, 3ij-iv.	Liquor ferri subsulphatis, f3ij-iv.
Aqua chlorinii, f3iv.	" plumbi subacetatis, f5j-ij.
Argenti nitras, gr. v-xx.	" sodæ chlorinatæ, f5j.
Catechu, ℥ss.	Plumbi acetas, gr. x-xx.
Copaiba, f3vj; mucilago acaciæ, ℥ss; aqua calcis ad Oj.	Potassii chloras, 3j.
Creasotum, m℥x-f3ss.	" nitras, ℥ss-j.
Cubeba, ℥ss-j.	" permanganas, gr. xx.
Cupri sulphas, gr. x-xxx.	Quercus alba, 5ss.
Cuprum ammoniatum, gr. x.	Sodii hyposulphias, 3j-ij.
Ergota, 3j.	" sulphis, 3ij-iv.
Extractum hæmatoxyli, 3j.	Tinctura ferri chloridi, f3ss-j.
Ferri iodidum, 3ss.	Zinci chloridum, gr. v-vij.
	" sulphas, gr. 3j-ij.

### Doses of Medicines in the form of Suppositories.

The excipient usually employed in the formation of suppositories is oleum theobromæ, or cocoa butter, on account of its possessing the desirable consistence and fusibility for the purpose. Suppositories for young children should not weigh more than five or ten grains; for adults, they may weigh twenty-five or thirty grains. The U. S. Pharmacopœia recommends thirty grains, the British Pharmacopœia only fifteen. The usual dose of the active ingredient of the suppository may be from one and a half to two times that of the same medicine administered by the mouth. In city practice the physician usually mentions the quantity of the medicine in his prescription, leaving the exact size of the suppository to the manipulation of the pharmacist; or the latter keeps on hand a full line of ready-made suppositories in anticipation of the needs of the practitioner.

The general subject of suppositories includes those intended for introduction into the rectum, vagina, uterus and urethra.

*Doses for Rectal Suppositories.*

The quantity mentioned of each article is intended to be mixed with an excipient, preferably cocoa butter (oleum theobromæ), according to the rules and manipulations familiar to pharmacist and physician.<sup>1</sup>

Acidum carbolicum, gr. j-iv.	Extractum opii aquosum, gr. $\frac{1}{4}$ -ij.
Acidum gallicum, gr. v-x. (See Opium.)	“ rhei, gr. xv.
Acidum tannicum, gr. iij-x. (See Extractum belladonnæ, Extractum stramonii, Morphine sulphas, Opium, Plumbi acetæ.)	“ stramonii, gr. j.
Aloe purificata, gr. ij-x.	Extractum stramonii, gr. j;
Aloin, gr. j; sapo, gr. v.	plumbi acetæ, gr. ij.
Alumen, gr. v-xv.	Extractum stramonii, gr. j; acidum tannicum, gr. v.
Argenti nitras, gr. j.	Ferri perchloridum, gr. ij.
Assafœtida, gr. v-x. (See Extractum ergotæ.)	“ subsulphas, gr. j-ij.
Camphora, gr. x.	Gallæ. (See Opium.)
Chloral, gr. v.	Gambogia, gr. iij-vj.
Creasotum, $\mathfrak{M}$ $\frac{1}{4}$ -ss.	Hydrargyri chloridum mite, gr. v-x. (See Santonium.)
Cupri acetæ, gr. ij.	Iodoformum, gr. iij.
“ sulphas, gr. ij.	Ipecacuanha, gr. ij-x.
Elaterium, gr. ss.	Kino, gr. ij-v.
Extractum belladonnæ, gr. $\frac{1}{4}$ -ij.	Morphine acetæ, gr. $\frac{1}{12}$ -j.
Extractum belladonnæ, gr. $\frac{1}{4}$ -j;	“ murias, gr. $\frac{1}{12}$ -j.
extractum opii, gr. ss-ij.	“ sulphas, gr. $\frac{1}{12}$ -j. (See Extractum belladonnæ.)
Extractum belladonnæ, gr. $\frac{1}{4}$ -ss;	Morphine sulphas, gr. ss; acidum tannicum, gr. iij.
plumbi acetæ, gr. ij-ijj.	Oleum theobromæ.
Extractum belladonnæ, gr. j;	Opium, gr. $\frac{1}{16}$ -iv. (See Pulvis ipecacuanhæ compositus.)
acidum tannicum, gr. iij.	Opium, gr. j; acidum gallicum, gr. ij.
Extractum belladonnæ, gr. ij;	Opium, gr. j-ij; acidum tannicum, gr. ij-v.
morphine sulphas, gr. ss.	Opium, gr. j; extractum hyoscyami, gr. ij-iv.
Extractum conii, gr. ss-ij.	Opium, gr. j; galla, gr. v.
“ ergotæ (Squibb's), gr. ij-x.	Opium, gr. j-ij; plumbi acetæ, gr. ij-v.
Extractum ergotæ, gr. v; assafœtida, gr. v.	Plumbi acetæ, gr. ij-v. (See Opium, Extractum belladonnæ, Extractum stramonii.)
Extractum hyoscyami, gr. iij-v. (See Opium.)	Plumbi acetæ, gr. ij; acidum tannicum, gr. iij.
“ nucleis vomicæ, gr. ss-ij.	
“ opii, gr. j. (See Extractum belladonnæ.)	

(<sup>1</sup> For the official suppositories, *Suppositoria*, U. S. Phar., see *Pharmacopæial Groups*.)

Plumbi iodidum, gr. ij.	Sapo.
Pulvis ipecacuanhæ compositus, gr. j-x.	Sodii sulphas, ʒj.
Quinæ sulphas, gr. j-iv.	Tinctura assafoetidæ, m℥xl.
Resina podophylli, gr. ¼-j.	Unguentum hydrargyri, gr. v.
Santonium, gr. ij-v.	Zinci oxidum, gr. viij-x.
Santoninum, gr. ij; hydrargyri chloridum mite, gr. v.	Zinci sulphas exsiccata, gr. ij.

### *Doses for Vaginal Suppositories.*

These conical preparations for the introduction of remedies *per vaginam* usually weigh about a drachm or more; and are shaped like a minie bullet, but somewhat larger. The quantity mentioned of each article is the proper dose for a suppository :—

Acidum carbolicum, m℥j.	Extractum belladonnæ, gr. j-ij.
“ gallicum, gr. x.	“ belladonnæ, gr. ij;
“ salicylicum, gr. v.	“ plumbi iodidum, gr. v.
“ tannicum, gr. v-x.	“ conii, gr. xv.
“ tannicum, gr. vj; opium, gr. ij.	“ hyoscyami, gr. ij-iv.
Aconitia, gr. ʒss.	“ nuci vomicæ, gr. ss-ij.
Alumen, gr. xv.	“ opii, gr. ij.
“ gr. xv; catechu, gr. xv.	Ferri perchloridum, gr. iij-v.
Ammonii bromidum, gr. xv.	“ subsulphas, gr. ij-v.
“ chloridum, gr. ij iv.	“ sulphas, gr. x.
Argenti nitras, gr. j.	Hydrargyri oxidum rubrum, gr. ij.
Atropia, gr. ʒss.	Iodinium, gr. ij.
“ gr. ʒss; potassii bromidum, gr. x.	Iodoformum, gr. v-x.
“ gr. ʒss; plumbi iodidum, gr. v.	Matico, gr. x.
Bismuthi subnitras, gr. xv.	Morphiæ murias, gr. ss-iss.
Chloral, gr. x-xv.	“ sulphas, gr. ss-iss.
Creasotum, m℥j-ss.	Morphiæ sulphas, gr. j; acidum tannicum, gr. v-x.
Extractum aconiti, gr. iss.	Opium, gr. iss-ij.
	Plumbi acetat, gr. ij-vij.

<sup>1</sup> As elsewhere stated, suppositories are usually made with oleum theobromæ as the excipient, but Dr. Meadows, in his address before the British Medical Association in 1871, remarks: “Inasmuch as it is no part of the function of the vaginal mucous membrane to digest fats, and as fats without digestion cannot be absorbed, and are apt, moreover, to hinder the absorption of other substances, it is desirable, I think, that we should not use greasy substances of any kind. For this reason I long ago gave up the employment of cocoa butter, and I now invariably use, as the basis of the pessary, gelatin and glycerine, into which we can put any ingredient we wish.” Tannic acid, and other substances incompatible with gelatin, cannot, however, be thus administered.

Plumbi acetat., gr. v; opium, gr. ij.	Potassii iodidum, gr. v-x.
" iodidum, gr. v-x.	Sodii borat., gr. xv.
" iodidum, gr. v; atropinæ sulphat., gr. $\frac{1}{10}$ .	" carbonat., gr. xv.
Potassii chlorat., gr. v-xv.	Unguentum hydrargyri, gr. xx-xxx.
" bromidum, gr. x.	Zinci oxidum, gr. xv.
" permanganat., gr. iij.	" sulphat. exsiccata, gr. iij.

### *Doses for Uterine Suppositories.*

Suppositories for introduction into the cervical canal are cylindrical in shape, and about two inches long, having a diameter similar to a No. 9 male catheter. They should weigh about fifteen grains:—

Acidum gallicum, gr. j.	Extractum opii aquosum, gr. ij.
" gallicum; opium, aa gr. j.	Ferri perchloridum, gr. j.
" tannicum, gr. j.	Morphiæ murias, gr. j.
" tannicum, opium, aa gr. j.	" sulphat., gr. j.
Argenti nitrat., gr. j.	Plumbi acetat., gr. j.
Cupri sulphat., gr. ss.	Zinci sulphat. exsiccata, gr. j.
Extractum belladonnæ, gr. ij.	

### *Doses for Urethral Suppositories (Soluble Bougies).*

This form of surgical treatment of gonorrhœa and gleet consists of firm smooth cylinders, two or three inches long, made of cocoa butter, having a diameter similar to a No. 9 bougie, and containing some remedial agent incorporated in it. This soluble bougie, well oiled, may be introduced by the patient himself into the urethra, preferably at bedtime, and will gradually dissolve in about ten minutes. The bougie may be retained by proper adjustment of slips of adhesive plaster.<sup>1</sup>

Acidum gallicum, gr. j.	Extractum opii aquosum, gr. ij.
" gallicum, opium, aa gr. j.	Ferri perchloridum, gr. ss-j.
" tannicum, gr. j.	Morphiæ murias, gr. j.
" tannicum, opium, aa gr. j.	" sulphat., gr. j.
Argenti nitrat., gr. $\frac{1}{4}$ -j.	Plumbi acetat., gr. ss-j.
Bismuthi subnitrat., gr. x.	" acetat., gr. ss; bismuthi subnitrat., gr. x.
Cupri sulphat., gr. ss.	Zinci sulphat. exsiccata, gr. j.
Extractum belladonnæ, gr. ij.	

<sup>1</sup> Sir Henry Thompson, *Lancet*, May 12, 1866.

**Doses for Enemata.**

The following simple rules should guide the practitioner in the employment of enemata:—

1. Unless the remedy thus applied is excessively potent, three times as much of it should be injected *per anum* as would otherwise be administered by the mouth.

2. When it is desirable to retain the injection, the total amount of fluid should be small, not more than two or three fluidounces, and slowly injected, so that the bowel will not be excited to reject it. On the other hand, a large quantity should be used, as will be presently observed, when the object is to produce an evacuation of the bowels. A mucilaginous menstruum may sometimes be necessary, such as starch, barley-water, etc., to cover irritating qualities of the drug or to shield the bowel.

3. The appropriate quantity of fluid, at different ages, to be injected for purposes of evacuation, may be briefly stated as follows:—

For a very young infant, f3j.

For a young child (1 to 6 years of age), for each year an additional f3j.

For a child 6 to 15 years of age, varying with age, from f3vj-x.

After 16 years of age, from f3x-xvj or more.

The quantity mentioned for each article is intended for a *pint* of water, only when the object of the enema is to produce an evacuation; otherwise, the rule of injecting a very much smaller quantity of fluid must be adhered to. The therapeutic action of each substance, in the form of enema, is appended:—

Acetum . . . . .	f 3j-ij	Astringent.
Acidum carbolicum . . . . .	℥ij-iv	Antiseptic and anthelmintic.
“ tannicum . . . . .	gr. x-xx	Astringent.
Aloes . . . . .	gr. x-xl	Purgative and anthelmintic.
Alumen . . . . .	3ij-iv	Astringent.
Amylum . . . . .	3ss	Emollient.
Anisum (in infusion) . . . . .	f 3j	Carminative
Anthemis (in infusion) . . . . .	f 3j	Carminative.
Aqua ammoniæ . . . . .	f 3ss	Stimulant.
“ camphoræ . . . . .	f 3j-ij	Antispasmodic.
Assafoetida . . . . .	3j-ij	Antispasmodic.
Belladonna . . . . .	gr. xv-xx	Antispasmodic.
Bismuthi subnitras . . . . .	gr. xxx-3j	Astringent.
Calx chlorinata . . . . .	3ij-iv	Antiseptic.
Camphora . . . . .	gr. xx-xl	Antispasmodic.
Carum (in infusion) . . . . .	f 3j	Carminative.
Catechu . . . . .	gr. xxx-3j	Astringent.
Chenopodium . . . . .	3ss-j	Anthelmintic.
Creasotum . . . . .	℥ij-ij	Antiseptic.
Ergota . . . . .	3ij-ij	
Extractum cinchonæ . . . . .	gr. xxx	Antiperiodic, tonic.
“ krameris . . . . .	gr. xx	Astringent.
Fel bovinum . . . . .	3j	Purgative.
Fœniculum (in infusion) . . . . .	f 3j	Carminative.
Galla . . . . .	gr. xxx-3j	Astringent.
Kino . . . . .	gr. xxx-3j	Astringent.
Krameria . . . . .	gr. xx-xl	Astringent.
Liquor calcis . . . . .	f 3iv-vij	Antiseptic.
“ plumbi subacetatis . . . . .	℥xl-f 3j	Astringent.
“ sodæ chlorinatæ . . . . .	f 3j	Antiseptic.
Magnesiæ sulphas . . . . .	3j-iss	Purgative.
Mentha viridis (in infusion) . . . . .	f 3j-iss	Carminative.
Mistura assafoetidæ . . . . .	f 3ij-iv	Antispasmodic.
Moschus . . . . .	gr. xv-xx	Antispasmodic.
Oleum lini . . . . .	f 3ij-iv in Oss of water.	} Purgative.
“ morrhæ . . . . .	f 3ss-j	
“ olivæ . . . . .	f 3ij-iv in Oss of water.	} Purgative.
“ ricini . . . . .	f 3j-ij in Oss of water.	
“ terebinthinæ . . . . .	f 3ij-f 3ij	Stimulant, purgative.
Plumbi acetas . . . . .	gr. x-xx	Astringent.
Potassii bicarbonas . . . . .	3ij	Anthelmintic.
Quercus alba . . . . .	3j	Astringent.
Quinæ sulphas . . . . .	gr. x-xx in f 3iv of water.	} Stimulant.

Salvia (in infusion) . . . . .	f3j	Carminative.
Sapo . . . . .	3ss	Purgative.
Sodii boras . . . . .	3ij-iv	Antiseptic.
“ chloridum . . . . .	3ij-iv	Purgative.
“ hyposulphis . . . . .	3j	Antiseptic.
“ sulphas . . . . .	3j in Oss	Purgative.
“ sulphis . . . . .	3j	Antiseptic.
Spigelia . . . . .	gr. xxx	Anthelmintic.
Spiritus ætheris compositus . . . . .	f3ij-iiij	Antispasmodic.
Tabacum . . . . .	gr. xv-xx to f3viiij	} Antispasmodic.
Tinctura assafœtidæ . . . . .	f3iv-f3j	
“ capsici . . . . .	f3j to Oss of water.	} Stimulant.
“ opii . . . . .	℥xx-f3j	

A class of ENEMATA is officinal in the last edition of the British Pharmacopœia, including the following:—

*Enema aloës.*—R. Aloës, gr. xl; potassii carbonatis, gr. xv; mucilaginis amyli, f3v.

*Enema assafœtidæ.*—R. Assafœtidæ, gr. xxx; aquæ destillatæ, f3iv.

*Enema magnesiæ sulphatis.*—R. Magnesiæ sulphatis, 3j (avoir.); olei olivæ, f3j; mucilaginis amyli, f3xv.

*Enema opii.*—R. Tincturæ opii, ℥xxx; mucilaginis amyli, f3ij.

*Enema tabaci.*—R. Tabaci foliorum, gr. xx; aquæ bullientis, f3viiij.

*Enema terebinthinæ.*—R. Olei terebinthinæ, f3j; mucilaginis amyli, f3xv.

In addition to the articles just enumerated, quite a number of domestic remedies are similarly employed. No definite directions are necessary in regard to proportion or the quantity of these to be injected, other than the general rules already laid down. Among these may be mentioned the following:—

Alcoholic liquors, barley, beef-tea, chocolate, coffee, flaxseed, gum Arabic, lard, molasses, mutton suet, oatmeal, slippery elm, starch, sugar, tapioca, tea, wines, yelk



of egg, and yeast. Their therapeutic action needs no further allusion.

When the object of the administration of an enema is its *nutritive* effect only, in cases in which, for some pathological cause, it is impossible for the stomach to receive nourishment, one of the following formulæ will be found serviceable:<sup>1</sup>—

*Beef-tea and Cream Enema.*—Mix together from four to eight ounces of strong beef-tea, an ounce of cream, and half an ounce of brandy or an ounce and a half of port wine, and administer two or three times in the twenty-four hours.

Or, mix four or six ounces of beef-tea or restorative soup (see *Dietetic Precepts*), prepared without acid, one ounce of cream, two teaspoonfuls of brandy, and ten grains of citrate of iron and quinia.

If brandy is not indicated, take beef-tea, soup, or milk and eggs beaten together, and thicken with corn flour.

*Cod-liver Oil and Bark Enema.*—Mix four ounces of milk, one ounce of port wine, half an ounce of cod-liver oil, two drachms of tincture of yellow bark, and twenty minims of liquid extract of opium. Administer every twelve hours.

*Quinine and Solution of Beef Enema.*—Take one tablespoonful of brandy, five grains of sulphate of quinia, one teaspoonful of glycerine, two tablespoonfuls of cream, and from four to eight ounces of restorative soup or beef-tea. Administer every six or eight hours. If the rectum should be irritable, add fifteen to twenty minims of liquid extract of opium.

#### **Baths and how to Medicate them.**

The baths recommended by the practitioner vary in kind and the quantity of the material employed to medi-

<sup>1</sup> Tanner, *Practice of Medicine*, 5th Amer. edit., 1872, p. 1053.

cate them, as they vary also in temperature. The simplest forms of unmedicated baths, classified chiefly according to temperature (Fahr.), are the following:—

Bath.	Water.	Vapor.	Air.
Cold . .	33° to 65°		
Cool . .	65° to 75°		
Temperate . .	75° to 85°		
Tepid . .	85° to 92°	90° to 100°	96° to 106°
Warm . .	92° to 98°	100° to 115°	106° to 120°
Hot . .	98° to 112°	115° to 140°	120° to 180°

The following formulæ will be found of practical value in a variety of cutaneous, hepatic, and other affections.<sup>1</sup>

*Arsenical Bath.*—℞. Sodii carbonatis, ℥iv; sodii arseniatis, gr. xx-xxxv; aquæ calidæ, Cong. xxx.

Or, ℞. Sodii chloridi, ℥j; sodii sulphatis, ℥j; sodii carbonatis, ℥ij; sodii arseniatis, gr. lii; aquæ calidæ, Cong. xxx.

Or, ℞. Potassi sulphureti, ℥iv; sodii arseniatis, gr. xxx-xl; aquæ calidæ, Cong. xxx.

*Borax Bath.*—℞. Sodii boratis, ℥iv; glycerinæ, f℥ij; aquæ calidæ, Cong. xxx.

*Conium and Starch Bath.*—℞. Extracti conii, ℥j; amyli pulv. ℔j; aquæ ferventis, Cong. xxx.

Or, the conium may be omitted, and a simple starch bath be employed.

*Creasote Bath.*—℞. Creasoti, f℥ij; glycerinæ, f℥iv; aquæ ferventis, Cong. xxx.

*Gelatine Bath.*—Dissolve ℔j of gelatine or common glue in a little boiling water, and add twenty gallons of hot water. To make it more efficacious, soak in it ℔j-ij of bran confined in a muslin bag.

<sup>1</sup> For several important suggestions in this place, the author is indebted to Tanner's *Practice of Medicine*, 5th Am. ed., Appendix, p. 1070.

*Hydrochloric Acid Bath.*—See Muriatic acid bath.

*Hydrosulphuretted Bath.*—See Sulphur bath.

*Hyposulphite of Sodium Bath.*—See Sulphur bath.

*Iodine Bath.*—R. Iodinii, ʒj; potassii iodidi, ʒss; liquoris potassæ, f ʒij; aquæ calidæ, Cong. xxx.

Or, R. Potassii iodidi, ʒvj; iodinii, ʒij; aquæ calidæ, f ʒxx. To be added to an ordinary bath.

Or, R. Potassii iodidi, ʒiv; iodinii, ʒij; aquæ, f ʒx. To be added to an ordinary bath for children.

*Iron Bath.*—R. Ferri iodidi, ʒij-ij; aquæ calidæ, Cong. xxv.

Or, R. Ferri sulphatis, ʒss; aquæ calidæ, Cong. iv. For children.

*Mercurial Vapor Bath.*—The patient is seated on a chair, and covered with an oilcloth lined with flannel, which is supported by a proper framework. Under the chair are placed a copper bath containing water, and a metallic plate on which is put from 60 to 180 grains of bisulphuret of mercury, or of the gray or red oxide. In syphilitic affections of the skin, testes, and bones, five to thirty grains of the green iodide may be used, or twenty grains of the same salt with ninety of the bisulphuret. Spirit-lamps are lighted under the bath and plate, and the patient is thus exposed to the influence of heated air, steam, and mercurial vapor. In ten or fifteen minutes the lamps are to be extinguished, and the patient, gradually cooling, is to be rubbed dry.<sup>1</sup>

The plan of Mr. Henry Lee is much more simple. A tin case, made by instrument-makers, is used, containing a spirit lamp, and having in the centre, over the flame, a small tin plate, on which 15 to 30 grains of calomel are placed, and around this a sort of saucer filled with boiling

<sup>1</sup> Langston Parker on Syphilis, quoted in Tanner, *loc. cit.*

water. The lamp being lighted, the apparatus is placed under a common cane-bottom chair, on which the patient sits, enveloped, chair and all, in one or more large blankets for about twenty minutes, when the water and mercury will be found to have disappeared. It is better not to use a towel, as the calomel would be wiped off by it.

*Muriatic Acid Bath.*—℞. Acidi muriatici, f̄3x; aquæ, Cong. l.

*Mustard Foot Bath.*—℞. Sinapis pulv. ʒij–iv; aquæ ferventis, Cong. iv.

*Nitromuriatic Acid Bath.*—℞. Acidi muriatici, p. iij; acidi nitrici, p. ij. Mix carefully and slowly, and after an interval of fifteen minutes, add aquæ destillatæ, p. v.

For a foot bath, add of the above f̄3vj to two or three gallons of water at 98°; or, ℞. acidi nitrici, f̄3ss; acidi hydrochlorici, f̄3j; aquæ calidæ, Cong. iv. In a wooden bath.

For a full bath, add 64 fluidounces of the mixture first named to 5 pints of cold water, and then hot water enough to raise the temperature to 98°. In a wooden bath.

Or, ℞. Acidi nitrici, f̄3iss; acidi hydrochlorici, f̄3j–iij; aquæ calidæ, Cong. xxx. In a wooden bath.

*Oak Bark Bath.*—℞. Quercûs contusæ, ℥j; aquæ calidæ, Oj. Boil for half an hour, strain, and add to 3 gallons of warm water. For children.

*Salt Water Bath.*—℞. Sodii chloridi, ℥ss; aquæ tepidæ, Cong. iv. For a sponge bath.

*Soda Bath.*—℞. Sodii bicarbonatis, ℥j; aquæ ferventis, Cong. xxx.

*Sulphur Bath.*—℞. Potassii sulphureti, ʒiv; acidi muriatici, f̄3ij; aquæ calidæ, Oj. To be poured into an ordinary bath.

Or, ℞. Sodii hyposulphitis, ʒi–iv; aquæ calidæ, Cong. j. To be poured into an ordinary bath.

Or, R. Potassii sulphureti,  $\bar{\text{z}}\text{iv}$ ; sodii hyposulphitis,  $\bar{\text{z}}\text{j}$ ; acidi sulphurici,  $\text{f}\bar{\text{z}}\text{j}$ ; aquæ calidæ, Cong. xxx.

Or, R. Potassii sulphureti,  $\bar{\text{z}}\text{iv}$ ; aquæ calidæ, Cong. xxx.

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## PHARMACOPŒIAL GROUPS,

### SIMPLIFIED FOR READY REFERENCE.

However familiar the practitioner may be with the officinal preparations, from daily experience with the employment of tinctures, extracts, etc., he has, as a rule, only a partial knowledge of their relative doses. The Pharmacopœia specifies quantities and methods of manufacture, but is silent on the subject of the doses appropriate to each. In addition to the exact composition of each preparation, the practitioner wishes to know in what way he can handle the extract or the solution which the nicety of the pharmacist's art has perfected for him. With the view of assisting him in the proper use of the material thus set before him, the following arrangement of the various officinal groups has been made directly from the U. S. Pharmacopœia. It has not been thought necessary to allude to their therapeutic qualities, with which the practitioner is supposed to be already acquainted.<sup>1</sup>

<sup>1</sup> Should it be desirable to convert the amounts mentioned into the phraseology of the metric system, this must be done according to the rules for solids and liquids already laid down (pp. 29 and 31).

**ACETA (Vinegars).—**Diluted acetic acid is the solvent employed.

Name.	Strength, etc.	Dose.
Acetum destillatum .	May be substituted for diluted acetic acid in making the other aceta.	
" lobelisæ . . .	℥ij to Oj of diluted acetic acid,	℥ xxx-℥ 3j.
" opii . . .	℥iiss " " "	℥ v-x.
" sanguinaris .	℥ij " " "	℥ xxx-℥ 3j.
" scillæ . . .	℥ij " " "	℥ xxx-℥ 3ij.

**AQUÆ (Medicated Waters).—**These are solutions of essential oils and gases in water.

Aqua acidi carbolici .	Glycerite of carbolio acid ℥x in Oj of distilled water,	℥ 3j-Oj.
" " carbonici .	Water impregnated with carbonic acid, equal to 5 times its bulk,	
" ammoniæ . . .	10 per cent. of ammonia, sp. gr. .960,	Ad lib. ℥ x-xx. Also for external use.
" amygdalæ amaræ	℥xvj of the oil to Oij of distilled water,	℥ 3ss.
" anisi . . .	℥ 3ss of the oil to Oij,	℥ 3j.
" aurantii florum .	℥iij to Oj, distil Oss,	℥ 3ss.
" camphoræ . . .	℥ij to Oij,	℥ 3ss.
" chlorinii . . .	Watersaturated with chlorine,	For external use.
" cinnamomi . . .	℥ 3ss of the oil to Oij,	℥ 3ss-j.
" creasoti . . .	℥ 3j to Oj,	℥ 3ij.
" destillata . . .	Used in making the other aquæ.	
" fœniculi . . .	℥ 3ss of the oil to Oij,	℥ 3ss-j.
" menthæ piperitæ	℥ 3ss of the oil to Oij,	℥ 3ss-j.
" " viridis	℥ 3ss of the oil to Oij,	℥ 3ss-j.
" rosæ . . .	℥ xij to Oiv, distil Oij,	Used as a vehicle.

**CERATA (Cerates).—**These external applications may be briefly mentioned. Their modus operandi and the indications for their use may be learned from their officinal names, the practitioner being of course familiar with the qualities thus suggested. They are—

Ceratum, or simple cerate.	Ceratum resinæ.
" cantharidis.	" " compositum.
" cetacei.	" sabinæ.
" extracti cantharidis.	" saponis.
" plumbi subacetatis.	" zinci carbonatis.

**CHARTÆ** (Papers).—The two officinal preparations of this class are intended as portable substitutes for the ordinary fly blister and mustard plaster. They are—

*Charta cantharidis.*      *Charta sinapis.*

**COLLODIA**.—Collodium, or solution of pyroxylon or gun cotton in ether, and two of its preparations are officinal—

*Collodium cum cantharide.*      *Collodium flexile.*

**CONFECTIONES** (Confections).—These are medicinal substances mixed in an agreeable form with honey, syrup, etc. Some of them are used as vehicles for other substances. They are—

<i>Confectio aromatica.</i>	<i>Confectio rosæ.</i>
" <i>aurantii corticis.</i>	" <i>sennæ.</i>
" <i>opii</i> (gr. j in 35.5).	

**DECOCTA** (Decoctions).—With the exception of decoctum cetrariæ, the strength of which is ℥ss to Oj of water, and decoctum sarsaparillæ compositum, ℥iss to Oj, the strength of the other decocta is ℥j to Oj. These are—

<i>Decoctum chimaphilæ.</i>	<i>Decoctum hæmatoxyli.</i>
" <i>cinchonæ flavæ.</i>	" <i>hordei.</i>
" " <i>rubræ.</i>	" <i>quercus albæ.</i>
" <i>cornûs floridæ.</i>	" <i>senegæ.</i>
" <i>dulcamaræ.</i>	" <i>uvæ ursi.</i>

The dose of each is f℥iss–ij.

**EMPLASTRA** (Plasters).—As a general rule the practitioner does not desire to know the exact strength of this class of external applications, having confidence that the proper amount of active material has been placed in them to render them effective. Their officinal names will suggest the uses to which they may be applied. They are—

<b>Emplastrum aconiti.</b>	<b>Emplastrum hydrargyri.</b>
“ ammoniaci.	“ opii.
“ “ cum hydrargyro.	“ picis Burgundicæ.
“ antimonii.	“ “ Canadensis.
“ arnicæ.	“ “ cum cantharide.
“ assafœtidæ.	“ plumbi.
“ belladonnæ.	“ resinæ.
“ ferri.	“ saponis.
“ galbani compositum.	

**EXTRACTA (Extracts).—**The mode of preparation of the different officinal extracts varies greatly in the details, which are chiefly of interest to the pharmacist. It is therefore deemed advisable to refer here to the *doses* alone, the minuteness or magnitude of which will be a sufficient guide to the practitioner as to the strength of the extract.

<b>Extractum aconiti, gr. ss-j.</b>	<b>Extractum hellebori, gr. x-xv.</b>
“ arnicæ, used in making emplastrum arnicæ.	“ hyoscyami, gr. ij-vj.
“ belladonnæ, gr. $\frac{1}{2}$ - $\frac{1}{2}$ .	“ “ alcoholicum, gr. j-ij.
“ “ alcoholicum, gr. $\frac{1}{2}$ - $\frac{1}{2}$ .	“ ignatiæ, gr. ss-j.
“ cannabis Americanæ, gr. ss-ij.	“ jalapæ, gr. x-xv.
“ cannabis Indicæ, gr. ss-ij.	“ juglandis, gr. x-xx.
“ cinchonæ, gr. x-xx.	“ krameriæ, gr. x-xx.
“ colchici aceticum, gr. j-ij.	“ nucis vomicæ, gr. ss-j.
“ colocynthidis, gr. v-xxx.	“ opii, gr. ss-j.
“ “ compositum, gr. x -xx.	“ physostigmatis, gr. $\frac{1}{8}$ - $\frac{1}{4}$ .
“ conii, gr. ij-vj.	“ podophylli, gr. v-x.
“ “ alcoholicum, gr. j-ij.	“ quassia, gr. ij-vj.
“ digitalis, gr. $\frac{1}{2}$ -ss.	“ rhei, gr. x-xx.
“ dulcamaræ, gr. ij-vj.	“ senegæ, gr. ij-v.
“ gentianæ, gr. x-xx.	“ stramonii foliorum, gr. ss -j.
“ hæmatoxyli, gr. x-xx.	“ “ seminis,
	“ taraxaci, gr. x-xxj.
	“ valerianæ, gr. v-x.

**EXTRACTA FLUIDA (Fluid extracts).—**All the fluid extracts of the U. S. Pharmacopœia, with one exception, contain 16 troyounces of the powdered material to 16 fluidounces of the menstruum. Extractum sarsaparillæ compositum fluidum contains sassafras and mezereon in addition. Extractum spigeliæ et sennæ fluidum is a mixture of extractum spigeliæ fluidum, f3x, with extractum sennæ fluidum, f3vj. The pro-



portions in this class of preparations being so definitely and systematically fixed, it will merely be necessary to mention the *doses* of each.

Extractum belladonnæ radiois fluidum, $\mathfrak{m}\text{j-ij}$ .	Extractum ipecacuanhæ fluidum, $\mathfrak{m}\text{v-xv}$ .
“ buchu fluidum, $\mathfrak{m}\text{xxv}$ .	“ krameriæ fluidum, $\mathfrak{m}\text{v-xx}$ .
“ calumbæ fluidum, $\mathfrak{f}\text{3ss-j}$ .	“ lupulinæ fluidum, $\mathfrak{m}\text{v-x}$ .
“ chimaphilæ fluidum, $\mathfrak{m}\text{x-xx}$ .	“ matico fluidum, $\mathfrak{m}\text{xx-xxx}$ .
“ cimicifugæ fluidum, $\mathfrak{m}\text{x-xx}$ .	“ mezerei fluidum, $\mathfrak{m}\text{ij-iv}$ .
“ cinchonæ fluidum, $\mathfrak{m}\text{xv-xxx}$ .	“ pareiræ fluidum, $\mathfrak{m}\text{x-xxx}$ .
“ coleletici radiois fluidum, $\mathfrak{m}\text{ij-vj}$ .	“ pruni Virginianæ fluidum, $\mathfrak{f}\text{3ss-j}$ .
“ “ seminis fluidum, $\mathfrak{m}\text{ij-vij}$ .	“ rhei fluidum, $\mathfrak{m}\text{xx-xl}$ .
“ eonii fructus fluidum, $\mathfrak{m}\text{ij-iv}$ .	“ rubi fluidum, $\mathfrak{m}\text{v-x}$ .
“ cornus floridæ fluidum, $\mathfrak{m}\text{x-xx}$ .	“ sabinæ fluidum. Used externally.
“ cubebæ fluidum, $\mathfrak{m}\text{xx}$ .	“ sarsaparillæ compositum fluidum, $\mathfrak{f}\text{3ss-j}$ .
“ digitalis fluidum, $\mathfrak{m}\text{j-ij}$ .	“ sarsaparillæ fluidum, $\mathfrak{f}\text{3ss-iv}$ .
“ dulcamaræ fluidum, $\mathfrak{f}\text{3j-ij}$ .	“ scillæ fluidum, $\mathfrak{m}\text{v-xx}$ .
“ ergotæ fluidum, $\mathfrak{m}\text{xx-xxx}$ .	“ senegæ fluidum, $\mathfrak{m}\text{x-xx}$ .
“ erigerontis Canadensis fluidum, $\mathfrak{m}\text{v-x}$ .	“ sennæ fluidum, $\mathfrak{f}\text{3ss-j}$ .
“ gelsemii fluidum, $\mathfrak{m}\text{ij-v}$ .	“ serpentariæ fluidum, $\mathfrak{m}\text{x-xx}$ .
“ gentianæ fluidum, $\mathfrak{m}\text{xx-xl}$ .	“ spigeliæ et sennæ fluidum, $\mathfrak{f}\text{3ij-iv}$ .
“ geranii fluidum, $\mathfrak{m}\text{x-xx}$ .	“ spigeliæ fluidum, $\mathfrak{f}\text{3ij-iv}$ .
“ glycyrrhizæ fluidum, $\mathfrak{f}\text{3j-iv}$ .	“ stillingiæ fluidum, $\mathfrak{m}\text{xxx-lx}$ .
“ gossypii radiois fluidum, $\mathfrak{m}\text{x-xx}$ .	“ taraxaci fluidum, $\mathfrak{f}\text{3j-ij}$ .
“ hydrastis fluidum, $\mathfrak{m}\text{ij-v}$ .	“ uvæ ursi fluidum, $\mathfrak{m}\text{xx-lx}$ .
“ hyoscyami fluidum, $\mathfrak{m}\text{v-x}$ .	“ valerianæ fluidum, $\mathfrak{m}\text{xxx-f3j}$ .
	“ veratri viridis fluidum, $\mathfrak{m}\text{v-x}$ .
	“ zingiberis fluidum, $\mathfrak{m}\text{v-xx}$ .

**GLYCERITA (Glycerites).—**The solvent powers of glycerine are called into requisition in the following officinal preparations. Being externally applied the proportion alone is mentioned in each.

Glyceritum acidî carbolici, $\mathfrak{f}\text{ij}$ to Oss of glycerine.	Glyceritum picis liquidæ, $\mathfrak{f}\text{ij}$ to Oj of glycerine, alcohol, and water.
Glyceritum acidî gallici, $\mathfrak{f}\text{ij}$ to Oss of glycerine.	Glyceritum sodii boratis, $\mathfrak{f}\text{ij}$ to Oss of glycerine.
Glyceritum acidî tannici, $\mathfrak{f}\text{ij}$ to Oss of glycerine.	

**INFUSA (Infusions).—**The usual dose of the infusions is  $\mathfrak{f}\text{3ij}$ , or a wineglassful, except infusum digitalis,

whose dose is fʒij, and infusum capsici, whose dose is fʒss. The *quantity* of the active ingredients is alone mentioned.

Infusum angusturæ, ʒss to Oj.	Infusum lini compositum, ʒss to Oj.
" anthemidis, ʒss to Oj.	" pareiræ, ʒj to Oj.
" buchu, ʒj to Oj.	" picis liquidæ (tar-water), Oj to Oiv.
" calumbæ, ʒss to Oj.	" pruni Virginianæ, ʒss to Oj.
" capsici, ʒss to Oj.	" quassia, ʒij to Oj.
" caryophylli, ʒij to Oj.	" rhei, ʒss to Oj.
" cascariillæ, ʒj to Oj.	" rosæ compositum, ʒss to Oiss.
" catechu compositum, ʒss to Oj.	" salviæ, ʒss to Oj.
" cinchouæ flavæ, ʒj to Oj.	" sennæ, ʒj to Oj.
" " rubræ, ʒj to Oj.	" serpentariæ, ʒss to Oj.
" digitalis, ʒij to Oj.	" spigeliæ, ʒss to Oj.
" eupatorii, ʒj to Oj.	" tabaci, ʒj to Oj.
" gentianæ compositum, ʒss to Oj.	" taraxaci, ʒij to Oj.
" humuli, ʒss to Oj.	" valerianæ, ʒss to Oj.
" juniperi, ʒj to Oj.	" zingiberis, ʒss to Oj.
" krameris, ʒj to Oj.	

**LINIMENTA (Liniments).**—The medical uses of the members of this group are suggested from the officinal names, the effects of each article, when externally applied, being familiar to the physician. They are—

Linimentum aconiti.	Linimentum chloroformi.
" ammoniæ.	" plumbi subacetatis.
" calcis.	" saponis.
" camphoræ.	" terebinthinæ.
" cantharidis.	

**LIQUORES (Solutions).**—The officinal aqueous solutions are given in the following syllabic list. Distilled water is the solvent.

Name.	Strength, etc.	Dose.
Liquor ammonii acetatis .	Dilute acetic acid neutralized by carbonate of ammonium.	fʒij-fʒj.
" arsenici chloridi .	Arsenious acid, gr. iv, muriatic acid, ℥viiss, to fʒj.	℥v-x.
" " et hydrargyri iodidi .	Iodide of arsenic, red iodide of mercury, ʒʒ gr. xxxv to Oss of water.	℥x-xx.
" barii chloridi .	ʒj to fʒij.	℥v.
" calcii chloridi .	ʒj to fʒjiss.	℥xx-xl.

Name.	Strength, etc.	Dose.
Liquor calcis . . .	. ℥j to Oij (saturated solution).	f℥s-j.
" ferri chloridi . .	. Iron, ℥ij; muriatic acid, ℥xviiss, in Oj.	℥ij-v.
" " citratis . . .	. ℥ss in f℥j.	To prepare ferri citras.
" " nitratis . . .	. Iron, ℥iiss; nitric acid, ℥v; in solution f℥xxxvj.	℥x xx.
" " subsulphatis . .	. Sulphate of iron, ℥xij; sulphuric acid, ℥j gr. xl; nitric acid ℥j ℥v; in f℥xij of solution.	Externally styptic.
" " tersulphatis . .	. Sulphate of iron, ℥xij; sulphuric acid, ℥xvij; nitric acid, ℥xiv; in Oiss of solution.	Used to prepare the sesquioxide.
" guttæ perchæ . .	. Gutta perchæ, ℥iss; chloroform, ℥xvij; carbonate of lead, ℥ij.	External use.
" hydrargyri nitratis .	. Mercury, ℥ij; nitric acid, ℥v; distilled water, f℥vj.	To prepare citrine ointment.
" iodinii compositus .	. Iodine, gr. xxiiss; iodide of potassium, gr. xlv; water, f℥j.	℥v-x.
" magnesiæ citratis . .	. Carbonate of magnesium, gr. co; citric acid, gr. cccc; syrup of citric acid, f℥ij; in f℥xij of solution.	Half or the whole of the contents of the bottle.
" morphinæ sulphatis .	. gr. j to f℥j.	f℥j-ij.
" plumbi subacetatis . .	. Acetate of lead, ℥xvj; oxide of lead, ℥ixss; in Oiv of solution.	For external use.
" plumbi subacetatis dilutus . . .	. f℥ij of liq. plumbi subacetatis to Oj.	For external use.
" potassæ . . .	. ℥j to Oj.	℥x-xx.
" potassii arsenitis . .	. Arsenious acid, gr. iv to f℥j.	℥v-x.
" " citratis . . .	. Citric acid, ℥ss; bicarbonate of potassium, ℥vss; water, Oss.	f℥ss.
" " permanganatis . .	. gr. iv to f℥j.	Used externally.
" sodæ . . .	. Carbonate of sodium, ℥vj ℥ij; lime, ℥ij; in Oiss of solution.	℥x-xx.
" " chlorinatæ . . .	. Chlorinated lime, ℥xij; carbonate of sodium, ℥xxiv; in water, Oxij.	gtt. x-f℥j; also used externally.
" sodii arseniatis . .	. gr. iv to f℥j.	℥v.
" zinci chloridi . . .	. Zinc, ℥vj; nitric acid, precipitated carbonate of zinc, ℥℥ gr. cl; muriatic acid, q. s.; water, Oj.	External use.

**MELLITA** (Honeys).—The only official preparations made with honey, instead of sugar, are—

*Mel despumatum.* Used in the preparation of *mel rosæ*.  
*Mel sodii boratis.*

Both are employed as mouth washes, or adjuvants to washes for the oral cavity.

**MISTURÆ** (Mixtures).—The dose of each of the official mixtures in the following list is here given; that of the almond emulsion being *ad libitum*:—

<i>Mistura ammoniaci</i> , f 3ss-j.	<i>Mistura cretæ</i> , f 3j.
" <i>amygdalæ</i> .	" <i>ferri composita</i> , f 3ss-j.
" <i>assafœtidæ</i> , f 3ss-iss.	" <i>glycyrrhizæ composita</i> , f 3ss.
" <i>chloroformi</i> , f 3ij-iv.	" <i>potassii citratis</i> , f 3ss.

**MUCILAGINES** (Mucilages).—These are—

<i>Mucilago acaciæ</i> .	<i>Mucilago tragacanthæ</i> .
" <i>sassafras medullæ</i> .	" <i>ulmi</i> .

All of these, except mucilage of tragacanth, are employed on account of their demulcent action, *ad libitum*, and also externally.

**OLEORESINÆ** (Oleoresins).—These preparations, formerly called fluid extracts, are solutions of the waxy and resinous constituents of the drug, produced by passing ether through the powdered drug in a covered displacement apparatus. The doses are—

<i>Oleoresina capsici</i> , employed externally.	<i>Oleoresina lupulinæ</i> , gtt. v-x.
<i>Oleoresina cنبهæ</i> , gtt. v-xxx.	" <i>piperis</i> , gtt. j-v.
" <i>flicis</i> , m v-xv.	" <i>zingiberis</i> , gtt. j-v.

**PILULA**.—Only two pilular masses are official under this name—

<i>Pilula ferri carbonatis</i> . . .	gr. x-xx.
" <i>saponis composita</i> . . .	gr. j of opium in every gr. v of the mass. gr. v.

**PILULÆ** (Pills).—Brief mention is here made of a variety of formulæ for pills contained in the Pharmacopœia.

The proportion of the main ingredients in a single pill is given. It is not considered, therefore, essential to designate the number of pills to be prescribed as a dose.

*Pilulæ aloës, gr. ij.*

- " aloës et assafœtidæ, gr.  $j\frac{1}{2}$  of each.
- " aloës et mastiches (Lady Webster's pills), gr. ij aloes, gr. ss mastich.
- " aloës et myrrhæ, gr. ij aloes, gr. j myrrh.
- " antimonii compositæ, gr. ss, each, of calomel and sulphurated antimony, gr. j guaiac.
- " assafœtidæ, gr. iiij.
- " catharticæ compositæ, gr.  $j\frac{1}{2}$  comp. extract of colocynth; gr. j each of extract of jalap and calomel; gr.  $\frac{1}{4}$  gamboge.
- " copaibæ, gr. iv $\frac{1}{2}$ .
- " ferri compositæ, gr. iss myrrh, gr.  $\frac{1}{2}$  each of carbonate of sodium and sulphate of iron.
- " ferri iodidi, gr.  $\frac{2}{3}$  iodine, gr.  $\frac{1}{16}$  iron wire, gr.  $\frac{1}{4}$  reduced iron.
- " galbani compositæ, gr. iss each of galbanum and myrrh, gr. ss of assafœtida.
- " hydrargyri, gr. j mercury in every three grains of the mass.
- " opii, gr. j.
- " quiniæ sulphatis, gr. j.
- " rhei, gr. iiij.
- " rhei compositæ, gr. ij rhubarb, gr. iss aloes, gr. j myrrh.
- " scillæ compositæ, gr. ss squill, gr. j each of ginger and ammoniac.

**PULVERES (Powders).**

Name.	Strength, etc.	Dose, etc.
<i>Pulvis aloës et canellæ</i> (Hiera pira) . . .	3iv aloes, 3j canella.	} gr. x-xx.
<i>Pulvis aromaticus</i> . . .	3j each cinnamon, ginger; 3ss each cardamon, nutmeg.	
<i>Pulvis ipecacuanhæ compositus</i> (Dover's powder)	gr. lx each ipecacuanha, opium; sulphate of potassa, 3j.	} gr. x.
<i>Pulvis jalapæ compositus</i> .	3ss jalap, 3j bitartrate of potassium.	
<i>Pulvis rhei compositus</i> .	3j rhubarb, 3iij magnesia, 3ss ginger.	} gr. xx-3ij.
<i>Pulveres effervescentes</i> (soda powders) . . .	Bicarbonate of sodium, gr. xxx; tartaric acid, gr. xxv.	
<i>Pulveres effervescentes aperientes</i> (Seidlitz powders) . . .	Tartrate of sodium and potassium, gr. cxx; bicarbonate of sodium, gr. xl (in one paper); tartaric acid, gr. xxxv (in another paper).	} In separate papers. Mix in water.

**RESINÆ (Resins).**—But three of these preparations are officinal.

*Resina jalapæ*, gr. v.  
*Resina podophylli* (*podophyllinum*), gr. i-j.

*Resina scammonii*, gr. v.

**SPIRITUS (Spirits).**—But few of the following articles of this group are used medicinally, the doses of such being mentioned. Some of them are employed as flavoring agents; others are carminative.

*Spiritus ætheris compositus*, ℥xxx  
-f 3j.  
“ *ætheris nitrosi*, f 3ss-j.  
“ *ammoniacæ*, ℥xxx, also for external use.  
“ *ammoniacæ aromatics*, ℥xxx-f 3j.  
“ *anisi*, f 3ss-f 3ss.  
“ *camphoræ*, ℥xx.  
“ *chloroformi*, f 3j.  
“ *cinnamomi*, f 3j-f 3ss.

*Spiritus juniperi*, f 3j.  
“ “ *compositus*, f 3j-f 3ss.  
“ *lavandulæ*, f 3ss-j.  
“ “ *compositus*, ℥xl-f 3ij.  
“ *limonis*.  
“ *menthæ piperitæ*, ℥v-xx.  
“ *menthæ viridis*, ℥v-xx.  
“ *myristicæ*, f 3j-f 3ss.

**SUCCI (juices).**—Only two of these are officinal—

*Succus conii*, ℥xxx-f 3j.

*Succus taraxaci*, f 3ij-iv.

**SUPPOSITORIA (Suppositories).**—It is desirable that the practitioner should know the strength of such of the articles of this group as he wishes to employ. The quantity of the active ingredient in each suppository is therefore mentioned.

*Suppositorium acidi carbolicæ*, gr. j in each.  
“ *acidi tannici*, gr. ij in each.  
“ *aloes*, gr. v in each.  
“ *assafœtidæ*, ℥xl of the tincture.  
“ *belladonnæ*, gr. ss.

*Suppositorium morphinæ*, gr. ss.  
“ *opii*, gr. j.  
“ *plumbi*, gr. iij of the acetate.  
“ *plumbi et opii*, gr. iij of the acetate, and gr. ss of opium.

**SYRUPUS (Syrups).**—In the following list the proportion of the active ingredient is mentioned only in such syrups as are of practical moment to the prescriber:—

Name.	Strength, etc.	Dose, etc.
Syrupus . . . . .		Used as a vehicle and for making other syrups.
" acaciæ . . . . .		f3j-ij. Chiefly used as a vehicle.
" acidi citrici . . . . .		" "
" alii . . . . .		f3j-iv. "
" amygdalæ . . . . .		f3i-iv. "
" aurantii corticis . . . . .		f3j-ij. "
" " florum . . . . .		f3j-ij. "
" ferri iodidi . . . . .	f3ij of iodine, 3v of iron wire, to f3xx.	m-v-xx.
" ipecacuanhæ . . . . .	f3j of fluid extract in Oj.	f3j.
" krameris . . . . .	f3j of fluid extract in f3ij.	f3j.
" lactucarii . . . . .	3j in Oj.	f3j.
" limonis . . . . .		f3j-ij. Chiefly used as a vehicle.
" pruni virginianæ . . . . .	3v of wild cherry to Oj.	f3j-ij.
" rhei . . . . .	f3ij of fluid extract in Oij.	f3j.
" " aromaticus . . . . .	3iiss of rhubarb, with aromatics, etc., to Ovij.	f3j-iv.
" rosæ gallicæ . . . . .		f3j-ij. Chiefly used as a vehicle.
" rubi . . . . .	f3vij of fluid extract in Ojss.	f3ss. -
" sarsaparillæ . . . . .	3vj of sarsaparilla, etc., to Oj.	f3ss.
" scillæ . . . . .	Oj of acetum scillæ with sugar.	f3j.
" " compositus (hive syrup) . . . . .	3ij each of squill and seneka, gr. xxiv of tartar emetic in Oiss.	f3j.
" senegæ . . . . .	3iv to Oss . . . . .	f3j-ij.
" tolutannæ . . . . .		f3j-ij.
" zingiberis . . . . .		f3j-iv. Chiefly used as a vehicle.

**TINCTURÆ (Tinctures).**—The strength and doses of this important group of remedies are given in the following schedule. As the object is to afford a tangible mode of reference to the practitioner for such articles as he may desire to employ, no attempt at classification, according to therapeutic qualities or pharmaceutical peculiarities, has been made. The menstruum is usually alcohol or diluted alcohol.

Name.	Strength, etc.	Dose.
Tinctura aconiti radialis .	℥vj to to Oj.	℥ij-iv.
" aloës . . .	℥ss to Oj.	f ℥ss-ij.
" " et myrrhæ .	℥ss of each to Oj.	f ℥j-ij.
" arnicæ . . .	℥iij to Oj.	Used exter- nally.
" assafœtidæ . .	℥ij to Oj.	f ℥ss-ij.
" aurantii . . .	℥ij to Oj.	f ℥ss-ij.
" belladonnæ . .	℥j to Oj.	℥x-xv.
" benzoini . . .	℥ij to Oj.	f ℥ss.
" benzoini composita	℥ss benzoin, ℥ij aloës, } ℥j storax, ℥ss tolu. } to Oj	f ℥ss.
" calumbæ . . .	℥ij to Oj.	f ℥ij-iv.
" cannabis . . .	gr. cccx of extract to Oj.	℥v-xv.
" cantharidis . .	℥ss to Oj.	℥x.
" capsici . . .	℥ss to Oj.	f ℥ss-ij.
" cardamomi . . .	℥j to Oj.	f ℥j-ij.
" " composita	℥vj cardamom, ℥ij caraway, ℥v cinnamon, ℥j cochineal to Oiss.	f ℥ij-f ℥ss.
" castorei . . .	℥j to Oj.	f ℥ss-ij.
" catechu . . .	℥ss to Oj.	f ℥j-ij.
" cinchonæ . . .	℥iij cinchona flava to Oj.	f ℥j-iv.
" " composita (Huxham's tincture)	℥iv cinchona rubra, ℥iij bit- ter-orange peel, gr. cccx serpentaria to Oiss.	f ℥j-iv.
" cinnamomi . . .	℥ss to Oj.	f ℥j-ij.
" colchici . . .	℥ij colchicum seed to Oj.	℥x-xxx.
" conii . . .	℥ij to Oj.	℥xv-xxx.
" cubebæ . . .	℥ij to Oj.	f ℥j-ij.
" digitalis . . .	℥j to Oj.	℥v.
" ferri chloridi .	Oss solution of chloride of iron and Oiss alcohol.	℥x.
" gallæ . . .	℥ij to Oj.	f ℥j-ij.
" gentianæ composita	℥j gentian, ℥ss bitter-orange peel, ℥ij cardamom to Oj.	f ℥j-ij.
" guaiaci . . .	℥iij to Oj.	f ℥j-ij.
" " ammoniata	℥iij to Oj aromatic spirit of ammonia.	f ℥j-ij.
" hellebori . . .	℥ij to Oj.	f ℥ss-ij.
" humuli . . .	℥ss to Oj.	f ℥j-ij.
" hyoscyami . . .	℥ij to Oj.	℥xv-f ℥j.
" iodinii . . .	℥j to Oj.	Used exter- nally.
" " composita.	℥ss iodine, ℥j iodide of po- tassium to Oj.	℥vliij-xv.
" jalapæ . . .	℥iij to Oj.	f ℥j-iv.
" kino . . .	gr. cccx to Oss.	f ℥j-ij.
" krameris . . .	℥iij to Oj.	f ℥j-ij.
" lobelisæ . . .	℥ij to Oj.	f ℥j-ij.
" lupulinæ . . .	℥ij to Oj.	f ℥j-ij.
" myrrhæ . . .	℥ss to Oj.	f ℥j.
" nucis vomicæ .	℥iv to Oj.	℥ij-x.



Name.	Strength, etc.	Dose.
Tinctura opii . . .	℥i½ to Oj.	℥x-xx.
“ “ acetata . . .	℥j to f℥vj distilled vinegar and f℥iv alcohol.	℥x.
“ “ camphorata . . .	gr. xxx each, opium and benzoic acid, gr. xx camphor, f℥ss oil of anise, ℥j clarified honey to Oj.	f℥j-iv.
“ “ deodorata . . .	℥i½ to Oj.	℥x-xij.
“ quassia . . .	℥j to Oj.	f℥j-ij.
“ rhei . . .	℥ss rhubarb, ℥ij cardamom to Oj.	f℥j-ij.
“ “ et sennæ . . .	℥i rhubarb, ℥ij senna, ℥j each of coriander and fennel, etc., to Oij.	f℥ss-ij.
“ sanguinaria . . .	℥ij to Oj.	f℥ss-j.
“ scillæ . . .	℥ij to Oj.	℥x-xxx.
“ serpentaria . . .	℥ij to Oj.	f℥j-ij.
“ stramonii . . .	℥ij to Oj.	℥v-x.
“ tolutana . . .	℥ss to Oj.	f℥ss-j.
“ valeriana . . .	℥ij to Oj.	f℥j-ij.
“ “ ammoniata . . .	℥ij. to Oj aromatic spirit of ammonia.	f℥j.
“ veratri viridis . . .	℥viiij to Oj.	℥ij-v.
“ zingiberis . . .	℥iv to Oj.	f℥ss-j.

**TROCHISCI (Lozenges).**—This group has been made official, as offering an agreeable method of administration, especially to children. The dose indicated is the proportion given of the remedy.

**Trochisci acidi tannici**, gr. j in each troche.

- “ cretæ, gr. iv in each.
- “ cubebæ, ℥ss oleoresin of cubebs in each.
- “ ferri subcarbonatis, gr. v in each.
- “ glycyrrhizæ et opii, gr. ½ extract of opium in each.
- “ ipecacuanhæ, gr. ¼ in each.
- “ magnesiæ, gr. iij in each.
- “ menthæ piperitæ, ℥½ oil of peppermint in each.
- “ morphinæ et ipecacuanhæ, gr. ¼ morphia, gr. ⅓ ipecacuanha in each.
- “ potassii chloratis, gr. v in each.
- “ santonini, gr. ss in each.
- “ sodii bicarbonatis, gr. iij in each.
- “ zingiberis, ℥ij tincture of ginger in each.

**UNGUENTA (Ointments).**—As a number of the official ointments contain powerful ingredients, a brief mention of their strength is considered necessary.

Unguentum,	℥viij lard, ℥ij yellow wax.
"	acidi carbolici, gr. lx in each ℥j.
"	" tannici, gr. xxx to ℥j.
"	antimonii, gr. xx, in each gr. o.
"	aquæ rosæ (cold cream), ℥iiss oil of almond, ℥j sperma-
"	ceti, ℥ij white wax, ℥ij rose water.
"	belladonnæ, ℥j in each ℥j.
"	benzoini, ℥ij tinct. benzoin to ℥xvj.
"	cantharidis, ℥j in ℥j.
"	creasoti, ℥ss to ℥j.
"	gallæ, ℥j in ℥j.
"	hydrargyri, ℥j in ℥ij.
"	" ammoniati, gr. xl to ℥j.
"	" iodidi rubri, gr. xvj to ℥j.
"	" nitratis, ℥iss mercury, ℥iiss nitric acid, ℥xviss
"	lard.
"	" oxidi flavi, ℥j in ℥j.
"	" " rubri, ℥j in ℥j.
"	iodinii, gr. xx iodine, gr. iv iodide of potassium, to ℥j.
"	" compositum, gr. xv iodine, gr. xxx iodide of po-
"	tassium, to ℥j.
"	mezerei, ℥℥j fluid extract, ℥iiss lard, ℥ss yellow wax.
"	piceis liquidæ, ℥ss in ℥j.
"	plumbi carbonatis, ℥j in ℥j.
"	" iodidi, ℥j in ℥j.
"	potassii iodidi, ℥j in ℥j.
"	stramonii, ℥j in ℥j.
"	sulphuris, ℥j in ℥iij.
"	" iodidi, gr. xxx to ℥j.
"	tabaci, ℥ss to ℥j.
"	veratriæ, gr. xx to ℥j.
"	zinci oxidi, gr. lxxx in ℥j.

VINA (Wines).—The official solutions of medicines in sherry wine are not numerous.

Name.	Strength, etc.	Dose.
Vinum aloës . . .	℥j to Oj.	℥℥j-ij.
" antimonii . . .	gr. xxxij tartar emetic to Oj.	℥℥j-iv.
" colchici radialis . .	℥vj to Oj.	℥ xv-xxx.
" " seminis . . .	℥ij to Oj.	℥℥j-ij.
" ergotæ . . .	℥℥ij fluid extract in each Oj.	℥xxx-℥℥j.
" ipecacuanhæ . . .	℥℥j fluid extract in each Oj.	℥℥j-iv.
" opii . . .	℥ij to Oj.	℥ x-xxx.
" rhei . . .	℥ij to Oj.	℥ss-j.
" tabaci . . .	℥j to Oj.	℥ x-xv.

## INCOMPATIBLES,

OR

REMEDIES THAT SHOULD NOT BE PRESCRIBED IN  
COMBINATION.

So many chemical remedies are employed by the practitioner, that it is well for him to consider whether his original intention may not be defeated by improper combination of two or more of this class of agents. As has been remarked by M. Mialhe,<sup>1</sup> it should be remembered that, when we administer several remedies at the same time, one of three things will happen: either each of the medicines will act in its own proper manner, as if it had been administered alone, or one of the substances will augment the action of the other, or the associated bodies will diminish or even annihilate each other's action. Sometimes two incompatibles are prescribed in combination intentionally, so that by mutual decomposition a new compound may be formed. In order to facilitate the prescriber in combining medicines understandingly, the following list of the principal chemical incompatibles is given, for reference merely, being rendered more convenient from its alphabetical arrangement. Careful study of its provisions will at once indicate that it is based on general principles, many of which would suggest themselves to the practitioner without any such elaborate guide to his action.

Some substances are *physiologically* incompatible, as belladonna and calabar bean: others are *pharmaceutically*

<sup>1</sup> *Chimie Appliquée à la Physiologie et à la Thérapeutique*, Paris, 1856.

so, as compound infusion of cinchona with compound infusion of gentian, or the latter with infusion of wild cherry; infusions generally with metallic salts; tinctures made with strong alcohol, with those made with weak alcohol, and with infusions and aqueous fluids; essential oils with aqueous liquids in quantities exceeding one drop to f3j; fixed oils and copaiva with water or aqueous fluids, other than excipients.<sup>1</sup>

As a rule, the following remedies should be prescribed alone, and in simple solution:—

Acidum hydrocyanicum dilutum.	Potassii bromidum.
“ nitromuriaticum dilutum.	“ iodidum.
Antimonii et potassii tartras.	“ permanganas.
Liquor calcis.	“ acetas.
“ potassæ.	Zinci acetas.
“ potassii arsenitis.	Morphiæ acetas.
“ ferri pernitratæ.	“ murias.
Tinctura ferri chloridi.	Quiniæ sulphas.
“ iodinii.	

### *List of Incompatibles.<sup>2</sup>*

**Absinthium.**—Antimony and potassium, tartrate of. Iron, sulphate of. Lead, acetate of. Silver, nitrate of. Zinc, sulphate of.

**Acacia.**—Acids. Alcohol. Ammonia. Ether. Iron, tincture of chloride of. Lead, acetate of. Sodium, borate of. (In emulsion.) Acids. Mercury, corrosive chloride of. Oxymer. Syrup of squills. Potassium, tartrate and bitartrate of. All spirits. All tinctures.

**Acidum aceticum.**—Alkalies. Earths. Carbonates of alkalies and earths.

**Acidum arseniosum.**—Bark, decoction of. Copper, sulphate of. Iron, hydrated peroxide of. Lime-water. Magnesia. Silver, nitrate of. Potassium, iodide and sulphhydrate of. Sulphurets, alkaline and earthy. Vegetable astringent infusions and decoctions.

**Acidum citricum.**—Acetates, alkaline and metallic. Acid, nitric. Acid, sulphuric. Carbonates, alkaline, earthy, and metallic. Potassium, tartrate of. Sulphurets, alkaline and earthy. Soaps.

W. Handsel Griffiths, *Lessons on Prescriptions*, etc. 12mo. London, 1876, p. 27.

<sup>2</sup> This table is based on that published in Dunglison's *Therapeutics and Materia Medica*, ii. 475, Phila. 1857, with numerous additions.

- Acidum gallicum.**—Antimony and potassium, tartrate of. Carbonates, alkaline. Copper, salts of. Iron, iodide and sulphate of. Lead, acetate of. Lime-water. Opium in solution. Silver, nitrate of.
- Acidum hydrocyanicum.**—Acids, mineral. Antimony, oxides of. Chlorine. Iron, salts of. Mercury, oxides of. Oxides generally. Silver, nitrate of. Sulphurets.
- Acidum muriaticum.**—Alkalies. Carbonates. Earths. Lead, salts of. Mercury, salts of. Oxides. Potassium, sulphate and tartrate of. Silver, salts of.
- Acidum nitricum.**—Alcohol. Alkalies. Carbonates. Earths. Iron, sulphate of. Lead, acetate of. Oils, essential. Oxides. Potassium, acetate of. Sulphurets. Zinc, sulphate of.
- Acidum nitromuriaticum.**—Alkalies. Earths. Oxides. Sulphurets.
- Acidum oxalicum.** Lime, salts of.
- Acidum phosphoricum.**—Barium, soluble salts of. Calcium, soluble salts of. Lead, soluble salts of.
- Acidum sulphuricum.**—Alcohol. Alkalies. Barium, chloride of. Calcium, chloride of. Carbonates. Chlorohydrates. Earths. Nitrates. Oils, essential. Organic substances. Oxides. Sulphhydrates. Sulphurets. Vegetable astringent infusions.
- Acidum tannicum.**—Albumen. Alkalies. Antimony and potassium, tartrate of. Earths, alkaline. Carbonates. Ferric salts. Gelatin. Lead, acetate of. Vegetable alkaloids.
- Acidum tartaricum.**—Alkalies. Carbonates, alkaline and earthy. Earths. Lead, salts of. Lime, salts of. Lime-water. Mercury, salts of. Potassium, salts of. Vegetable astringents.
- Adeps.**—Alcoholic preparations. Decoctions. Infusions. Tinctures.
- Aloe.**—Mercury, nitrate of. Silver, nitrate of. Tin, protochloride of.
- Alumen.**—Alkalies. Alkaline salts. Ammonium, carbonate and chloride of. Galla. Kino. Lead, acetate of. Lime. Magnesia. Magnesium, carbonate of. Mercury, salts of. Potassium, carbonate of. Sodium, carbonate of.
- Ammonii carbonas.**—Acids. Alkalies, fixed. Alum. Carbonates, alkaline. Iron, salts of, except the potassio-tartrate. Lead, salts of. Lime. Lime, chloride of. Liquor potassæ. Magnesia. Magnesium, sulphate of. Mercury, acetate, chloride, and bichloride of. Potassa. Potassium, bitartrate and bisulphate of. Salts, acidulous. Sulphur. Zinc, sulphate of.
- Ammonii chloridum.**—Acid, nitric. Acid, sulphuric. Alkalies, fixed. Carbonates, alkaline. Iron, sulphate of. Lead, salts of. Lime. Liquor potassæ. Magnesia. Magnesium, sulphate of. Potassa. Potassium, carbonate of. Salts, metallic. Silver, salts of. Soda. Sodium, carbonate of. Zinc, sulphate of.
- Amylum.**—Iodine and its preparations.
- Angustura.**—Acids, mineral. Antimony and potassium, tartrate of. Cinchona, infusion of. Copper, sulphate of. Galls, infusion of. Iron, sulphate of. Lead, acetate of. Mercury, corrosive chloride of. Potassa. Silver, nitrate of. (In infusion.) Catechu, infusion of. Galls, infusion of. Zinc, sulphate of.

- Anthemis.**—Cinchona, infusion of. Gelatin. Iron, preparations of. Isinglass, solution of. Lead, salts of. Mercury, corrosive chloride of. Silver, nitrate of.
- Antimonii et potassii tartras.**—Acids, mineral. Alkalies. Calcium, chloride of. Carbonates, alkaline and earthy. Decoctions, bitter. Earths. Infusions, bitter. Lead, salts of. Lime-water. Metals. Soaps. Sulphydrates. Sulphurets.
- Antimonii sulphuretum.**—Acid, nitric. Acid, nitromuriatic.
- Aqua ammoniæ.**—Acids. Alum. Salts, metallic.
- Argenti nitras.**—Acetates. Acid, arsenious. Acid, muriatic, and salts. Acid, sulphuric, and salts. Acid, tartaric, and salts. Alkalies, fixed. Bromides. Chlorides. Copper, solutions of salts of. Earths, alkaline. Iodides. Lime. Phosphates. Sulphydrates. Soaps. Sulphurets. Vegetable astringent infusions. Water, common.
- Armoracia.**—Carbonates, alkaline. Cinchona, infusion of. Galls, infusion of. Mercury, corrosive chloride of. Silver, nitrate of. Vegetable astringents.
- Arnica.**—Acids, mineral. Iron, sulphate of. Lead, acetate of. Zinc, sulphate of.
- Aurantii cortex.**—Cinchona, infusion of. Iron, sulphate of. Lead, acetate of. Lime-water.
- Auri chloridum.**—Alkalies. Vegetable juices.
- Balsama (copaiva, tolu, etc.).**—Acids. Alkalies.
- Barii chloridum.**—Carbonates. Nitrates. Phosphates. Sulphates.
- Belladonna.**—Acid, tannic. Vegetable astringents.
- Benzoinum.**—Acids. Alkalies.
- Buchu.**—Galls, infusion of. Iron, sulphate of.
- Calcii carbonas.**—Acids. Alum. Ammonium, chloride of. Salts, acidulous.
- Calumba.**—Acids, mineral. Ammonia. Galls, infusion of. Iron, chloride of. Lead, acetate of. Lime-water. (In infusion.) Antimony and potassium, tartrate of. Cinchona, infusion of. Mercury, corrosive chloride of. Silver, nitrate of.
- Calx chlorinata.**—Acid, nitric. Acid, sulphuric. Alkalies, fixed. Carbonates, alkaline. Sodium, borate of. Sulphates.
- Capsicum.**—Alum. Ammonia. Carbonates, alkaline. Copper, sulphate of. Galls, infusion of. Iron, sulphate of. Lead, acetate of. Mercury, corrosive chloride, and nitrate of. Potassium, carbonate of. Silver, nitrate of. Zinc, sulphate of.
- Cardamomum.**—Acids. Iron, sulphate of. Mercury, corrosive chloride of.
- Caryophyllus.**—Cinchona. Antimony and potassium, tartrate of. Iron, sulphate of. Lead, acetate of. Lime-water. Silver, nitrate of. Zinc, sulphate of.
- Cascarilla.**—Same as the preceding.
- Catechu.**—Acid, muriatic. Acid, sulphydric. Albumen. Alkalies. Baryta, solutions of. Calcium, salts of. Gelatin. Lime-water. Salts, alkaline and metallic. (Also in infusion.) Acids, mineral.

Antimony and potassium, tartrate of. Cinchona, infusion of. Iron, sulphate of. Isinglass solution. Mercury, corrosive chloride of. Zinc, sulphate of.

Chloral hydrate.—Alkalies.

Cinchona.—Acids, mineral. Alkalies. Antimony and potassium, tartrate of. Carbonates, alkaline. Iron, sulphate of. Lead, acetate of. Lime-water. Magnesia. Mercury, corrosive chloride of. Rhubarb, infusion of. Silver, nitrate of. Vegetable bitters, infusion of. Zinc, sulphate of.

Cocculus.—Iron, sulphate of. Lead, acetate of. Zinc, sulphate of.

Colechicum.—Acids.

Colocynthis.—Alkalies, fixed. Iron, sulphate of. Lead, acetate of. Lime-water. Mercury, corrosive chloride of. Silver, nitrate of.

Conium.—Acid, tannic. Alkalies. Vegetable acids.

Copaiva.—Acids, mineral.

Creta præparata.—Acids. Alum. Ammonium, chloride of. Salts, acidulous.

Cupri sulphas.—Alkalies. Ammonium, acetate of. Calcium, chloride of. Carbonates, alkaline and earthy. Iron, acetate of. Lead, acetate of. Lime-water. Mercury, corrosive chloride of. Potassium, arsenite and tartrate of. Silver, nitrate of. Sodium, borate of. Vegetable astringent infusions, and tinctures.

Cuprum ammoniatum.—Acids. Alkalies, fixed. Lime-water.

Digitalis.—Acid, tannic. Cinchona, infusion of. Iron, sulphate of. Lead, acetate of. Vegetable astringents.

Ferri chloridum.—Alkalies. Carbonates, alkaline. Calcium, carbonate of. Gum, solutions of. Lime-water. Magnesium, carbonate of. Vegetable astringents.

Ferri iodidum.—Alkalies, fixed. Lime-water. Vegetable astringents.

Ferri et potassii tartras.—Acids. Lime-water. Potassium, sulphhydrate of. Sulphur. Vegetable astringent infusions.

Ferri subcarbonas.—Acids and their salts.

Ferri sulphas.—Acid, nitric. Alkalies. Ammonium, acetate of. Ammonium, chloride of. Barium, chloride of. Calcium, chloride of. Carbonates, alkaline. Earths. Lead, acetate of. Lime-water. Potassium, iodide and nitrate of. Potassium and sodium, tartrate of. Salts, with base forming insoluble sulphates. Silver, nitrate of. Soap. Sodium, borate of. Tannic acid. Vegetable alkaloids. Vegetable astringent infusions.

Ferrum ammoniatum.—Acids. Alkalies. Carbonates, alkaline. Lime-water. Vegetable astringents.

Galla.—Acid, muriatic. Acid, sulphuric. Alkalies. Antimony and potassium, tartrate of. Bismuth, salts of. Carbonates, alkaline. Cinchona, infusion of. Copper, sulphate of. Gelatin. Iron, salts of. Isinglass, solution of. Lead, salts of. Lime-water. Mercury, corrosive chloride of. Mercury, nitrate of. Opium, solution of. Salts, generally. Silver, nitrate of. Zinc, salts of. Vegetable alkaloids.

- Gualiacum.**—Acids, mineral. Chlorine, solution of. Salts, earthy and metallic. Spirit of nitrous ether.
- Gentiana.**—Iron, sulphate of. Lead, acetate of.
- Hæmatoxyton.**—Acid, acetic. Acids, mineral. Alum. Antimony and potassium, tartrate of. Cinchona, infusion of. Copper, sulphate of. Iron, sulphate of. Lead, acetate of. Opium.
- Humulus.**—Acids, mineral. Iron, salts of. Lead, salts of. Mercury, salts of. Silver, salts of.
- Hydrargyri chloridum corrosivum.**—Albumen. Alkalies, fixed. Almond mixture. Ammonia. Antimony and potassium, tartrate of. Bismuth. Calcium, carbonate of. Carbonates, alkaline. Copper, salts of. Gelatin. Gluten. Hydrosulphates. Infusions of chamomile, cinchona, columbo, horseradish, oak bark, senna, simaruba, and tea. Iron, salts of. Lead, salts of. Lime-water. Mercury. Milk. Oils. Potassium, bromide and iodide of. Potassium, sulphate and sulphuret of. Sarsaparilla. Silver, nitrate of. Soap. Sodium, bromide, iodide, and sulphate of. Sulphur. Sulphurets. Vegetable astringents. Zinc, salts of.
- Hydrargyri chloridum mite.**—Acids, mineral. Alkalies. Antimony, golden sulphuret of. Carbonates, alkaline. Chlorides. Chlorine. Copper, salts of. Iron, salts of. Lead, salts of. Lime-water. Potassium, iodide and sulphuret of. Soaps.
- Hydrargyri iodidum.**—Acids, mineral. Iodides. Potassium, chloride of. Sodium, chloride of.
- Hydrargyri oxidum rubrum.**—Acids.
- Hydrargyri oxidum nigrum.**—Acids.
- Hydrargyrum ammoniatum.**—Acids. Alkalies, fixed. Tin, protochloride of.
- Hydrargyrum cum cretâ.**—Acids and their salts. Alum.
- Hydrogen, peroxide of.** Acid, hydrocyanic. Alkalies, citrates and tartrates of. Chlorides. Iron, salts of. Nitrates. Tartrates. Vegetable tinctures.
- Hyoscyamus.**—Acids, vegetable. Iron, sulphate of. Lead, acetate of. Silver, nitrate of. Vegetable astringents.
- Infusum lini.**—Alcohol. Lead, acetate of.
- Iodinium.**—Alkalies. Earths, alkaline. Starch.
- Ipecacuanha.**—Acids, vegetable. Lead, acetate of. Vegetable astringents.
- Kino.**—Same as Galla.
- Krameria.**—Same as Galla.
- Lavandula.**—Iron, sulphate of.
- Limonis cortex.**—Acid, nitric. Acid, oxalic. Acid, sulphuric. Acid, tartaric. Lime-water.
- Liquor ammonii acetatis.**—Acids. Alkalies. Alum. Copper, sulphate of. Iron, sulphate of. Lime-water. Lead, acetate of. Magnesium, sulphate of. Mercury, corrosive chloride of. Silver, nitrate of. Zinc, sulphate of.



- Liquor arsenioli et hydrargyri iodidi.** Morphia, acetate, muriate, and sulphate of. Opium, tincture of.
- Liquor calceis.**—Acids. Ammonium, chloride of. Alum. Borates. Carbonates, alkaline. Citrates. Iron, sulphate of. Magnesium, sulphate of. Mercury, chlorides of. Salts, alkaline and metallic. Silver, nitrate of. Soap. Sulphur. Tartrates. Tinctures. Vegetable astringent infusions. Zinc, sulphate of.
- Liquor plumbi subacetatis.**—Alkalies. Carbonates, alkaline. Mucilages. Soap liniment. Sulphates, alkaline. Sulphurets of alkaline metals. Water, undistilled.
- Liquor potassæ.**—Acids. Ammonium, acetate, carbonate, and chloride of. Mercury, chlorides of. Salts, metallic.
- Liquor potassii arsenitis.**—Acids, mineral. Alum. Calcium, salts of. Cinchona, infusion of. Copper, salts of. Hydrosulphates. Iron, salts of. Lime-water. Magnesium, sulphate of. Salts, acidulous. Silver, nitrate of. Sulphurets. Vegetable astringents.
- Lupulina.**—Iron. Mercury, salts of. Platinum, salts of. Tin, salts of.
- Magnesia.**—Acids. Ammonium, chloride of. Salts, acidulous and metallic.
- Magnesi carbonas.**—Acids. Alkalies. Alum. Ammonium, chloride of. Copper, sulphate of. Iron, sulphate of. Lead, acetate of. Lime-water. Mercury, acetate and corrosive chloride of. Potassium, bitartrate of. Salts, acidulous and neutral. Silver, nitrate of. Zinc, sulphate of.
- Magnesi sulphas.**—Alkalies. Ammonium, chloride of. Barium, chloride of. Calcium, chloride of. Carbonates, alkaline. Lead, acetate of. Lime-water. Silver, nitrate of.
- Mentha.**—Iron, sulphate of. Lead, acetate of. Silver, nitrate of.
- Morphia.**—Oxides, metallic.
- Morphia, salts of.**—Alkalies. Ammonia. Carbonates, alkaline. Decoctions and infusions of vegetable astringents. Lead, acetate of. Lime. Magnesia. Silver, nitrate of.
- Moschus.**—Acids, mineral. Cinchona, infusion of. Iron, sulphate of. Mercury, corrosive chloride of. Silver, nitrate of.
- Mucilago.**—Alcohol. Ammonia. Acids, strong. Ether, compound spirit of. Iron, tincture of chloride of. Salts, metallic.
- Opium.**—Alkalies. Carbonates, alkaline. Catechu. Cinchona. Copper, salts of. Galls. Iron, salts of. Kino. Lead, acetate of. Lime-water. Mercury, corrosive chloride of. (In infusion, etc.) Ammonia. Carbonates, alkaline. Copper, sulphate of. Galls, infusion of. Iron, sulphate of. Lead, acetate of. Mercury, corrosive chloride of. Silver, nitrate of. Zinc, sulphate of.
- Oleum amygdalæ.**—Acids. Mercury, corrosive chloride of.
- Oxymel.**—Poppies, syrup of. Potassium, bisulphate, bitartrate, and tartrate of. Resins. Squills, syrup of. Water, hard.
- Pimenta.**—Alum. Ammonia. Carbonates, alkaline. Cinchona, infusion of. Copper, salts of. Iron, nitrate and sulphate of. Silver, salts of. Zinc, salts of. Vegetable astringents.

Piper.—Galls, infusion of.

Plumbi acetat.—Acids. Alkalies. Alum. Ammonium, solution of acetate of. Antimony and potassium, tartrate of. Carbonates, alkaline. Chlorides. Earths. Chlorohydrates. Iron, ammoniated. Iron and potassium, tartrate of. Lime-water. Milk. Opium, infusion of. Soaps. Sodium, borate of. Sulphates. Sulphurets. Tartrates. Vegetable astringents. Water, common.

Potassa.—Acids. Ammonium, salts of. Salts, acidulous, earthy, and metallic.

Potassii acetat.—Fruits, acid. Acids, mineral. Ammonium, chloride of. Calcium, carbonate of. Magnesium, sulphate of. Mercury, corrosive chloride of. Potassium, tartrate of. Salts, acid, alkaline, and metallic, except acetates. Sodium, sulphate of. Tamarinds.

Potassii bicarbonas.—Acids. Alum. Ammonium, salts of. Antimony and potassium, tartrate of. Calcium, carbonate and chloride of. Copper, acetate and sulphate of. Iron, chloride and sulphate of. Iron and potassium, tartrate of. Lead, acetate of. Lime-water. Magnesium, sulphate of. Mercury, corrosive chloride of. Mercury, mild chloride of. Salts, acidulous and metallic. Silver, nitrate of. Sodium, borate of. Zinc, sulphate of.

Potassii bitartras.—Acids, mineral. Alkalies. Earths, alkaline. Lime-water.

Potassii bromidum.—Lead, salts of. Mercury, salts of. Salts, acid and acidulous, except bitartrate of potassium. Silver, salts of.

Potassii carbonas.—See Potassii bicarbonas.

Potassii citras.—Acids, mineral. Calcium, salts of. Lead, salts of. Silver, salts of.

Potassii iodidum.—Acids. Lead, acetate of. Mercury, corrosive chloride of. Salts, acidulous, except bitartrate of potassium. Salts, metallic.

Potassii nitras.—Acid, sulphuric. Acid, tartaric. Alum. Salts, metallic.

Potassii sulphas.—Acid, muriatic. Acid, nitric. Acid, tartaric. Calcium, compounds of. Lead, salts of. Mercury, salts of. Silver, nitrate of.

Potassii sulphuretum.—Acids. Salts, acidulous. Earths, metallic.

Potassii tartras.—Acids. Acid fruits. Ammonium, chloride of. Barium, chloride of. Calcium, chloride of. Lead, acetate of. Lime. Magnesia. Magnesium, sulphate of. Potassium, sulphate of. Salts, acidulous. Silver, nitrate of. Sodium, sulphate of. Tamarinds. Vegetables, acid.

Quassia.—Lead, acetate of. Silver, nitrate of.

Quercus.—Alkalies. Carbonates, alkaline. Cinchona, infusion of. Iron, salts of. Isinglass, solution of. Lead, acetates of. Lime-water. Mercury, corrosive chloride of. Zinc, sulphate of.

Quinæ sulphas.—Alkalies. Astringent solutions. Carbonates, alkaline. Earths, alkaline. Infusion of galls, and of orange-peel, compound. Infusion of roses. Lead, salts of. Lime-water. Potassium, tartrate of. Silver, nitrate of. Tincture of cinchona.

- Rheum.**—Acids, mineral. Antimony and potassium, tartrate of. Infusions of angustura, catechu, cinchona, or galls. Iron, sulphate of. Isinglass. Lead, acetate of. Lime-water. Mercury, corrosive chloride of. Silver, nitrate of. Zinc, sulphate of.
- Rosa gallica.**—Alkalies. Earths. Gelatin. Iron, sulphate of. Lime-water. Zinc, sulphate of.
- Salix.**—Carbonates, alkaline. Gelatin. Iron, sulphate of. Isinglass solution. Lime-water. Zinc, sulphate of.
- Salvia.**—Iron, salts of.
- Sapo.**—Acids. Alum. Antimony and potassium, tartrate of. Calcium, chloride and sulphate of. Copper, ammoniated. Copper, sulphate of. Earths. Iron, ammoniated. Iron and potassium, tartrate of. Iron, sulphate of. Lead, acetate of. Lime-water. Magnesium, sulphate of. Mercury, acetate, corrosive chloride, and mild chloride of. Salts, acidulous and metallic. Silver, nitrate of. Vegetable astringent infusions. Water, hard. Zinc, sulphate of.
- Sarsaparilla.**—Galls. infusion of. Lead, acetate of. Lime-water. Mercury, nitrate of.
- Scammonium.**—Acids.
- Scilla.**—Carbonates, alkaline. Gelatin. Lead, acetate of. Lime-water. Silver, nitrate of.
- Senna.**—Acids, mineral. Antimony and potassium, tartrate of. Carbonates, alkaline. Cinchona, infusion of. Lead, acetate of. Lime-water. Mercury, corrosive chloride of. Silver, nitrate of.
- Serpentaria.** (In infusion.)—Acids, mineral. Alkaline carbonates. Antimony and potassium, tartrate of. Cinchona, infusion of. Lead, acetate of. Lime-water. Mercury, corrosive chloride of. Silver, nitrate of.
- Sodii acetat.**—Acids, mineral. Calcium, carbonate of.
- Sodii bicarbonas.** See Potassii bicarbonas.
- Sodii boras.**—Acids. Ammonium, chloride and sulphate of. Chlorohydrates, earthy. Potassa. Sulphates, earthy.
- Sodii carbonas.**—See Potassii carbonas.
- Sodii phosphas.**—Acids, mineral. Alum. Calcium, carbonate of. Salts, with earthy base.
- Sodii et potassii tartras.**—Acids. Ammonium, chloride of. Barium, salts of. Calcium, salts of. Lead, salts of. Magnesium, sulphate of. Potassium, sulphate of. Salts, acidulous, except bitartrate of potassium. Silver, nitrate of. Soda, sulphate of. Tamarinds.
- Sodii sulphas.**—Acid, muriatic. Acid, nitric. Acid, sulphuric. Barium, chloride of. Lead, salts of. Lime. Magnesia. Potassium, acetate and carbonate of. Silver, salts of.
- Spiritus ætheris nitrosi.**—Carbonates, alkaline and earthy. Guaiacum, tincture of. Iron, sulphate of.
- Spiritus ammoniæ aromaticus.**—Acids. Lime-water. Salts, earthy and metallic. Salts, with excess of acids.
- Stramonium.**—Acids, mineral. Iron, salts of. Lead, salts of. Mercury, salts of. Silver, salts of.

- Tamarindus.**—Antimony and potassium, tartrate of. Carbonates, alkaline. Lime-water. Potassium, salts of. Senna, infusion of. Sodium, salts of.
- Taraxacum.**—Galls, infusion of. Iron, sulphates of. Lead, acetate of. Mercury, corrosive chloride of. Silver, nitrate of.
- Tinctura ferri chloridi.**—Alkalies. Astringents. Carbonates, alkaline. Lime-water. Magnesia. Mucilage. Vegetable astringent infusions.
- Tinctura opii.**—Ammonia, solution of. Potassa and carbonates. Salts, metallic. Soda and carbonates. Vegetable astringent infusions and decoctions.
- Tragacantha.**—Alcohol. Copper, sulphate of. Iron, sulphate of. Lead, acetate of.
- Uva ursi.**—Alkalies. Antimony and potassium, tartrate of. Gelatin. Infusion of cinchona. Ipecacuanha. Iron, salts of. Lead, salts of. Opium. Silver, nitrate of.
- Valeriana.**—Cinchona, infusion of. Iron, salts of. Silver, nitrate of.
- Zinci oxidum.**—Acids. Alkalies. Salts, acidulous.
- Zinci sulphas.**—Alkalies. Carbonates, alkaline. Earths. Lime-water. Milk. Sulphurates. Sulphurets. Mucilage. Vegetable astringent infusions.

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## WHAT TO PRESCRIBE IN THE SOLID OR THE LIQUID FORM.

As the practitioner is frequently at a loss to know in what shape he can place the remedy or remedies he wishes to give his patient, that they may be at once unobjectionable and effective, it is desirable that he should have rules to guide him. In rural districts this becomes especially necessary, as the physician is so often his own apothecary, mixing and dispensing medicines, and preparing them for use in his practice, often according to his own unassisted taste or knowledge.

### Medicines Adapted to the Liquid Form.<sup>1</sup>

Under this head may be mentioned most of the soluble salts, light insoluble powders, extracts, gum resins, fixed and essential oils, and all the galenical solutions.

#### SOLUBLE SUBSTANCES.

##### *Forming Eligible Solutions with Water.*

Acidum citricum.	Potassii acetas.
" tannicum.	" bicarbonas.
" tartaricum.	" bromidum.
Alumen.	" carbonas.
Ammonii chloridum.	" citras.
Antimonii et potassii tartras.	" chloras.
Barii chloridum.	" hypophosphis.
Calcii chloridum.	" iodidum.
" hypophosphis.	" tartras.
Ferri sulphas.	Sodii bicarbonas.
" et potassii tartras.	" boras.
" pyrophosphas.	" carbonas.
Magnesii sulphas.	" chloridum.
Manganesii sulphas.	" hypophosphis.
Morphiæ acetas.	" phosphas.
" murias.	" sulphas.
" sulphas.	" et potassii tartras.

##### *Requiring certain Additions to Form Eligible Solutions.*

Chinoidine.  
Cinchoniæ sulphas.  
Hydrargyri iodidum rubrum.  
Iodinium.  
Quiniæ sulphas.  
Quinidiæ sulphas.

##### *Requiring Viscid Substances as Correctives or Vehicles.*

Ammonii carbonas.  
Hydrargyri chloridum corrosivum.  
Plumbi acetas.  
Potassii cyanuretum.  
Potassa.

##### *Best formed into Solutions in making the Chemical Compounds.*

Acidum phosphoricum.	Ferri phosphas.
Ammonii acetas.	Magnesii citras.
Arsenici et hydrargyri iodidum.	Potassa.
Ferri citras.	Potassii arsenis.
" nitras.	" bitartras.

<sup>1</sup> From tables in Parrish's Pharmacy, Phila., 1874, pp. 802 and 829.

## INSOLUBLE SUBSTANCES.

*Mixing with Water, but not Forming Clear Solutions.**Diffused by Agitation.*

Calcii phosphas.  
 Magnesia.  
 Potassii bitartras.  
 Pulvis cinchonæ.  
 " ipecacuanhæ.  
 Quinîæ sulphas.  
 Sulphur præcipitatum.

Confectiones.  
 Guaiacum.  
 Myrrha.  
 Scammonium.

*Suspended by the Aid of Viscid Excipients.*

Copalba.  
 Ferri protocarbons.  
 Olea destillata.  
 Oleum amygdalæ.  
 " olivæ.  
 " ricini.

*Best Combined with a Fixed Oil or Yolk of Egg.*

Camphora.  
 Chloroformum.  
 Extractum cannabis Indicæ.  
 Oleum terebinthinæ.

*Miscible by Trituration alone.*

Ammoniacum.  
 Assafoetida.  
 Extractum aconiti.  
 " belladonnæ.  
 " conii.  
 " glycyrrhizæ.  
 " hyoscyami.  
 " krameris.  
 " stramonii.  
 " taraxaci.

**Medicines Adapted to the Form of Powder.**

The substances best adapted to this form are insoluble mineral substances, vegetable products, and some soluble substances, all of which are included in the following syllabus:—

**INSOLUBLE SUBSTANCES; TOO LARGE DOSES FOR PILLS.**

Calcii phosphas.  
 Carbo ligni.  
 Cræta præparata.  
 Ferri subcarbonas.  
 " phosphas.  
 Magnesia.

Potassii bitartras.  
 Sulphur sublimatum (and others).  
 Vegetable powders, as cinchona, calomba, cubeba, gentian, jalap, rhubarb (and others).

**IN CERTAIN COMBINATIONS, AND WHEN PILLS ARE OBJECTED TO.**

Bismuthi subnitras.  
 Calomel.  
 Cinchona alkaloids.  
 Opium alkaloids.  
 Powdered acidum gallicum.  
 " " tannicum.  
 " digitalis.

Powdered extractum colocynthidis compositum.  
 " kino.  
 " nux vomica.  
 " opium.  
 " pilula hydrargyri.  
 " potassii nitras (and many others).

The *Diluents* for substances prescribed in the form of powders are—

Aromatic powder.	Powdered elm bark.
Lactin.	" extract of liquorice.
Mannite.	" sugar.
Powdered acacia.	" tragacantha (and others).
" cinnamon.	

### Medicines Adapted to the Pilular Form.

These include powders given in less than gr. xv doses, gum resins, extracts, also oleoresins and oils in small proportion.

### UNADHESIVE MATERIALS.

Antimonii et potassii tartras.	Potassii iodidum.
" sulphuretum.	Pulvis digitalis.
Argenti nitras.	" ipecacuanhæ.
" oxidum.	" " et opii.
Bismuthi subnitras.	Strychnia (and others).
Calomel.	<i>Difficult to Combine, Except by Peculiar Treatment.</i>
Camphor.	Copaiba.
Ferri pulvis.	Ferri iodidum.
" subcarbonas (and other salts).	Oleum terebinthinæ.
Morphiæ acetat, etc.	" tiglii (and others).
Plumbi acetat.	

### GOOD MEDICINAL EXCIPIENT.

Extracts.	Pulv. opii.
Pilula ferri carbonatis.	" rhei.
Pilulæ copaibæ.	" scillæ (and others).
" hydrargyri.	<i>With Alcohol and Tinctures.</i>
Terebinthina.	Guaiaconum.
	Resinous extracts (and others).
<i>With Moisture.</i>	<i>With Dilute Sulphuric Acid.</i>
Assafoetida.	Cinchonæ sulphas.
Berberinæ sulphas.	Quinæ sulphas.
Ferri citras.	Quinidiæ sulphas.
Pulv. acidi tannici.	Quinoidina.
" aloës.	
" kino.	

## THE MODERN TREATMENT OF DISEASES.

A list of the principal remedial agents, arranged in conjunction with the diseases to which they are applicable, will supply to the practitioner a means of ready reference and useful therapeutic suggestions.<sup>1</sup> No attempt will be made to indicate the doses, form of preparation, special adaptedness of the remedy, etc., and the reader must distinguish for himself those which must be used externally as washes, injections, atomized fluids, etc., and those which must be administered internally. Although such a commentary might be very desirable, its necessarily extended length would transcend all possible limits. Surgical treatment is not alluded to.

### **Abscess—**

Alcohol.	Chloral.	Oleate of mercury and
Belladonna. [of.	Counter-irritants.	morphia.
Calcium, phosphate	Ether.	Poultices.
Carbolic acid.	Iodine.	Sulphides.

### **Acidity of Stomach—**

Acids.	Bismuth, subnitrate	Nux vomica.
Alkalies.	Chalk, prepared. [of.	Potassa, solution of.
Ammonia, solution of.	Charcoal.	Potassium, carbonates
Ammonium, carbonate	Fel bovinum.	of.
of.	Lime-water. [ate.	Silver, oxide of.
Argilla.	Magnesia and carbon-	Sodium, carbonates of.

### **Acne—**

Acid, hydrocyanic.	Conium.	Iodine.
Acids, mineral.	Corrosive sublimate.	Iron.
Arsenic.	Creasote.	Laxatives, saline.
Bath, vapor.	Glycerine.	Lead, acetate of.
Benzoin.	Green soap.	Mercury, iodide and
Cod-liver oil.	Hot water.	nitrate of.
Collodion.		

<sup>1</sup> The doses of the various articles have already been mentioned (p. 79). Formulæ for the administration of many of these are given elsewhere (p. 181). For doses of gargles, injections, etc., see pages 95-114. Dietetic hints and precepts, applicable to diseases, will be considered hereafter.



**Acne—continued.**

Oil of cajeput.  
Phosphorus.  
Potassa.

Potassium, bromide  
and sulphide of.  
Sulphur.

Sulphur, iodide of.  
Tannic acid.

**Addison's Disease.**

Alcohol.  
Bismuth.  
Cod-liver oil.

Digitalis.  
Electricity.  
Iced drinks.

Iron.  
Phosphorus.  
Silver, nitrate of.

**Adynamia—**

Alcohol.  
Cinchona.  
Iron.

Malt liquors.  
Phosphorus.  
Tonics.

Wines.  
(See Debility and  
Anæmia.)

**Albuminuria—See Bright's disease.****Alopecia—**

Ammonium, chloride  
of.  
Cantharides.  
Castor oil.

Copper, sulphate of.  
Corrosive sublimate.  
Glycerine.  
Green soap.

Lotions (alcoholic,  
alkaline, etc.).  
Oils.  
Quinia.

**Amaurosis—**

Electricity.  
Nux vomica.

Strychnia.

Veratrum.

**Amenorrhœa—**

Aconite.  
Alcohol.  
Alkalies.  
Aloes.  
Ammonia, solution of.  
Ammonium, chloride  
of.  
Apiol.  
Arsenic.  
Assafœtida.  
Baths, hot.  
Calcium, iodide of.  
Calumbo.  
Cantharides.  
Castor.  
Chloroform.

Cimicifuga.  
Colocynth.  
Crocus.  
Electricity.  
Emmenagogues.  
Ergot.  
Foot-bath.  
Galbanum.  
Gamboge.  
Gentian.  
Guaiaacum.  
Hellebore.  
Ice-bag, spinal.  
Iodine.  
Iron.  
Manganese.

Massage.  
Mercury, iodide of.  
Mustard bath.  
Myrrh.  
Oil of cajeput.  
Oil of turpentine.  
Potassium, bromide  
of.  
Rhubarb.  
Rosemary.  
Rue.  
Savine.  
Silver, nitrate of.  
Sponging, cold.  
Strychnia.  
Tansy.

**Anæmia—**

Acids.  
Arsenic.  
Calcium, hypophos-  
phite and phosphate  
of.

Iron.  
Manganese.  
Oxygen.  
Phosphorus.  
Quinia.

Sodium, hypophos-  
phite of.  
Sponging, cold.  
Zinc, phosphide of.  
(See Adynamia and  
Chlorosis.)

**Anæmia, Pernicious—See Pernicious.****Aneurism—**

Alum.  
Chloroform.  
Collodion.  
Compression.

Digitalis.  
Electricity.  
Ergot.  
Iodine.

Iron.  
Potassium, iodide of.  
Zinc, chloride of.

**Angina Pectoris—**

Amyl, nitrite of.	Ether.	Oil of turpentine.
Arsenic.	Fomentations.	Opium.
Assafoetida.	Hydrocyanic acid.	Phosphorus.
Chloral.	Iodine.	Potassium, chlorate of.
Digitalis.	Morphia	Silver, nitrate of.
Electricity.	Musk.	

**Anthrax—See Carbuncle.**

**Aphonia—**

Alum.	Croton oil.	Ether.
Arnica.	Cubebs.	Iodine.
Cauterization.	Electricity.	Strychnia.
Chlorine.		

**Aphthæ—**

Alum.	Krameria.	Rose, French.
Borax.	Lead, acetate of.	Sage.
Chlorine water.	Nitric acid.	Sugar.
Creasote.	Potassium, carbonate and chlorate of.	Tannic acid.
Iron, nitrate of.		Zinc, sulphate of.

**Apoplexy—**

Assafoetida.	Colocynth.	Iodine.
Bloodletting.	Croton oil.	Mustard.
Blisters.	Elaterium.	

**Arterial Excitement—**

Aconite.	Bloodletting.	Veratrum viride.
Antimony.	Gelsemium.	

**Arthritis—**

Arsenic.	Mercury.	Opium.
Cod-liver oil.	Morphia.	(See Joints.)
Iodine.		

**Ascarides—**

Acetic acid.	Lime-water.	Sodium, chloride of.
Aloes.	Mucuna.	Sugar.
Assafoetida.	Quinia, sulphate of.	Tansy.
Camphor.	Santonin.	Tin, powdered.
Carbolic acid.	Senna.	Tobacco.
Cod-liver oil.	Silver, nitrate of.	(See Worms.)
Ether.		

**Asthma—**

Aconite.	Benzoin.	Conium.
Alum.	Blisters.	Counter-irritants.
Ammonia.	Bromides.	Creasote.
Amyl, nitrite of.	Cannabis Indica.	Croton oil.
Anæsthetics.	Castor.	Digitalis.
Arsenic.	Chloral.	Dracontium.
Assafoetida.	Chloroform.	Electricity.
Atropia.	Cinchona.	Ether.
Bath, Turkish.	Coffee	Eucalyptus.
Belladonna.	Colchicum.	Fomentations.

**Asthma—continued.**

Galbanum.	Nitric acid.	Quinia, sulphate of.
Hydrocyanic acid.	Oil of turpentine.	Silver, nitrate of.
Hyoscyamus.	Opium.	Stramonium.
Iodine.	Oxygen.	Strychnia.
Ipecacuanha.	Potassium, bromide,	Sulphurous acid.
Jaborandi.	carbonate, cyanide,	Tartar emetic.
Lobelia.	iodide, and nitrate	Tobacco.
Morphia.	of.	Veratrum.

**Atrophy, Muscular—**

Blisters.	Cod-liver oil.	Sugar.
Brucia.	Nux vomica.	Strychnia.

**Bed-sores.**

Alcohol.	Creasote.	Lead, carbonate,
Alum.	Galvanism.	iodide, and tannate
Camphor.	Glycerine.	of.
Charcoal.	Iodoform.	Silver, nitrate of.
Collodion.		(See Sores.)

**Bladder, Diseases of—**

Ammonium, benzoate	Ergot.	Paullinia.
and chloride of.	Flaxseed.	Salicylic acid.
Belladonna.	Gallic acid.	Sodium, carbonate of.
Benzoic acid.	Iodine.	Strychnia.
Buchu.	Iodoform.	Sulphites.
Cantharides.	Juniper.	Uva ursi.
Copaiba.	Oil of turpentine.	(See Cystitis, etc.)
Cubebs.	Pereira.	

**Bolls—**

Acids, mineral.	Cold.	Iron.
Arsenic.	Collodion.	Opium.
Belladonna.	Counter-irritants.	Poultices.
Calcium, sulphide of.	Glycerine.	Quinia.
Camphor.	Hyposulphites.	Silver, nitrate of.
Carbolic acid.	Iodine.	Sulphites.

**Breasts, Inflammation of—**

Antiphlogistics.	Opium.	(See Nipples.)
Belladonna.		

**Bright's Disease—**

Aconite.	Cinchona.	Iron, chloride of.
Alkalies.	Copaiba.	Jaborandi.
Ammonia, benzoate	Diaphoretics.	Lead, acetate of.
of.	Digitalis.	Potassium, bitartrate
Baths (Turkish, warm,	Diuretics.	and iodide of.
etc.).	Elaterium.	Senega.
Blisters.	Gallic acid.	Sulphur.
Cannabis Indica.	Iodine.	Tannic acid.

**Bronchitis—**

Alum.	Arsenic.	Baths.
Ammoniac.	Assafoetida.	Benzoic acid.
Ammonium, carbon-	Balsam of Peru.	Benzoin.
ate and chloride of.	Balsam of tolu.	Blisters.

**Bronchitis—continued.**

Burgundy pitch.	Electricity.	Opium.
Calabar bean.	Expectorants.	Potassium, chlorate of.
Calcium, iodide of.	Flaxseed.	Poultices.
Cantharides.	Gallic acid.	Quinia.
Carbolic acid.	Garlic.	Sanguinaria.
Castor oil.	Hydrocyanic acid.	Senega.
Cetraria.	Inhalations.	Silver, nitrate of.
Chloroform.	Iodine.	Squill.
Chondrus.	Ipecacuanha.	Strychnia.
Cimicifuga.	Iron.	Sulphur.
Cinchona.	Jaborandi.	Sulphurous acid.
Cod-liver oil.	Lactucarium.	Syrup.
Copaiba.	Lead, acetate of.	Tannic acid.
Copper, ammoniated.	Liquorice.	Tar.
Counter-irritants.	Lobelia.	Tartar emetic.
Cubebs.	Mustard.	Zinc, oxide and sulphate of.
Demulcents.	Nitric acid.	Wild cherry.
Digitalis.	Nux vomica.	
Dulcamara.	Oil of turpentine.	

**Bronchocele—**

Ammonium, iodide of.	Iodine.	Potassium, bromide and iodide of.
Belladonna.	Iron, iodide of. [of.	
Cod-liver oil.	Mercury, deutiodide	

**Bronchorrhœa—**

Alum.	Creasote.	Ice-bag, spinal.
Ammoniac.	Digitalis.	Iodine.
Astringents.	Gallic acid.	Iron.

**Bubo—**

Carbolic acid.	Iodine.	Salicylic acid.
Iodoform.	Nitric acid.	Sulphides.

**Burns—**

Acetic acid, dilute.	Cold.	Lime, chlorinated.
Alum.	Collodium.	Lime-water.
Bath, warm.	Creasote.	Lime-water and linseed oil.
Bismuth, subnitrate of.	Cotton.	Oil of turpentine.
Carbolic acid.	Glycerine.	Silver, nitrate of.
Castor oil.	Iodine.	Soda, chlorinated.
Chloral.	Iodoform.	Tannic acid.
Cod-liver oil.	Lead, acetate and carbonate of.	Turpentine liniment.

**Calculi—**

Alkalies.	Ether.	Potassium, citrate of.
Belladonna.	Muriatic acid, dilute.	Uva ursi.
Chloroform.	Nitric acid, dilute.	(See Lithiasis.)
Counter-irritants.		

**Calculi, Biliary—**

Bath (hot or vapor).	Ether.	Opium.
Belladonna.	Fomentations.	Saline aperients.
Chloral.	Morphia.	Sodium, choleate of.
Chloroform.		

<b>Cancer—</b>		
Acetic acid.	Conium.	Opium.
Arsenic.	Enemata.	Potassa.
Belladonna.	Iodine.	Poultices.
Carbolic acid.	Iodoform.	Sanguinaria.
Carbonic acid.	Iron.	Silver, nitrate of.
Charcoal.	Mercury.	Tannic acid.
Chloral.	Nitric acid.	Zinc, chloride of.
Chloroform.		
<b>Cancrum Oris—</b>		
Acetic acid.	Chlorine.	Nitric acid. [of.
Ammonium, carbon- ate of.	Copper, sulphate of.	Potassium, chlorate
	Lime, chlorinated.	Zinc, sulphate of.
<b>Carbuncle—</b>		
Belladonna.	Iodine.	Pressure.
Carbolic acid.	Iron.	Quinia.
Collodion.	Opium.	Sulphides
Creasote.	Poultices.	
<b>Caries—</b>		
Cod-liver oil.	Potassium, perman- ganate of.	Sulphuric acid.
Creasote.		Tonics.
Nitric acid.		
<b>Cataract—</b>		
Atropia.	Belladonna.	Phosphorus.
<b>Catarrh—</b>		
Aconite.	Bath (Turkish, warm foot-bath).	Olive oil.
Actæa racemosa.	Carbolic acid spray.	Opium.
Almond oil.	Dover's powder.	Potassium, chlorate
Ammoniac. [of.	Eucalyptus.	Squill. [of.
Ammonium, chloride	Garlic.	Tannic acid.
Antimony.	Ipecacuanha.	Tar.
Assafœtida.	Oil of turpentine.	Tolu.
Balm.		Zinc, oxide of.
<b>Cerebral Excitement—</b>		
Bloodletting.	Cold douche.	(See Meningitis, Deli- rium, Mania, etc.)
Cathartics.	Counter-irritants. [of.	
Cold.	Potassium, bromide	
<b>Chancre—</b>		
Alkalies.	Hydrogen, peroxide	Salicylic acid.
Caustics.	Iodoform. [of.	Silver, nitrate of.
Corrosive sublimate.	Mercury, nitrate of.	Zinc, chloride of.
Escharotics.	Nitric acid.	(See Syphilis.)
<b>Chaps—</b>		
Benzoin.	Glycerite of starch.	Sulphurous acid.
Collodion.	Lead, nitrate of.	(See Sores.)
Glycerine.		

**Chilblains—**

Alum.	Copaiba.	Oil of turpentine.
Balsam of Peru.	Iodine.	Petroleum.
Borax.	Iron.	Sulphurous acid.
Capsicum.	Nitric acid.	(See Frostbite.)

**Chloasma—**

Bismuth, subnitrate of.	Mercury (ammoniated and nitrate).	Soap, potash.
Corrosive sublimate.		Zinc, sulphate of.

**Chlorosis—**

Arsenic.	Electricity.	Phosphorus.
Calcium, hypophosphite of.	Iron.	Sodium, hypophosphonics. [phite of.
Cinchona.	Mercury.	Zinc, phosphide of.
Cold.	Nux vomica.	(See Anæmia.)
	Oxygen.	

**Cholera and Cholera Morbus —**

Acid, nitric.	Counter-irritants.	Nux vomica.
Amyl, nitrite of.	Creasote.	Opiates.
Arsenic.	Ice-bag, spinal.	Potassium, chlorate of.
Calomel.	Indian hemp.	Silver, nitrate of.
Camphor.	Hot-air bath.	Sodium, chloride of.
Capsicum.	Lead, acetate of.	Strychnia.
Chloral.	Lime.	Sulphuric acid.
Chloroform.	Mercury with chalk.	Tannic acid.
Copper.	Mustard.	

**Cholera Infantum—**

Alum.	Ipecacuanha.	Potassium, chlorate
Cold baths.	Lead, acetate of.	Sulphuric acid. [of.
Enemata.	Opium.	(See Diarrhœa.)

**Chordee—**

Aconite.	Bromides.	Camphor, monobro-
Belladonna.	Camphor.	Lupulin. [mated.

**Chorea—**

Actæa racemosa.	Conium.	Potassium, bromide of.
Arsenic.	Copper.	Silver, oxide and nitrate of.
Assafoetida.	Electricity.	Sodium, arseniate of.
Belladonna.	Ether.	Sponging, cold.
Bromides.	Gelsemium.	Tartar emetic.
Calabar bean.	Hyoscyamia.	Valerian.
Camphor, monobromated.	Ice-bag, spinal.	Veratrum.
Chloral.	Indian hemp.	Zinc, iodide, oxide, and sulphate of.
Chloroform.	Iron.	
Cimicifuga.	Musk.	
Cod-liver oil.	Nux vomica.	
	Opium.	

**Cirrhosis of Liver. See Liver.**

**Colic—**

Ammonia.	Cloves.	Magnesia.
Aniseed.	Counter-irritants.	Oils, essential.
Antacids.	Ether.	Opiates.
Assafœtida.	Fennel.	Peppermint.
Baths, warm.	Fomentations.	Potassium, bromide
Belladonna.	Ginger.	of.
Caraway.	Lavender.	Spearmint.
Chloral.	Lime-water.	Tobacco.
Chloroform.		

**Colic, Biliary—**

Bath, warm.	Ether.	Oil of turpentine.
Chloroform.	Fomentations.	Opiates.
Electricity.		

**Colic, Lead—**

Alum.	Chloroform.	Nux vomica.
Belladonna.	Croton oil. [of.	Sulphuric acid.
Castor oil.	Magnesium, sulphate	Tobacco.

**Colic, Renal—**

Bath, warm.	Ether.	Opium.
Chloroform.	Fomentations.	Strychnia.
Counter-irritants.		

**Coma—**

Blisters.	Cold douche.	Mustard poultices.
Bloodletting.	Croton oil.	Oil of turpentine.

**Condylomata—**

Arsenic.	Mercury, nitrate and	Savine.
Carbolic acid.	red iodide of.	Zinc, chloride, iodide,
Chromic acid.	Nitric acid.	and nitrate of.
Creasote.		

**Conjunctivitis—**

Alum.	Copper, sulphate of.	Opium, wine of.
Belladonna.	Lead, acetate of. [of.	Sassafras pith.
Blisters.	Mercury, yellow oxide	Silver, nitrate of.
Calomel ointment.	Oleate of mercury and	Zinc, sulphate of.
Carbolic acid.	morphia.	

**Constipation—**

Aloes.	Ipecacuanha.	Podophyllum, resin
Belladonna.	Iron.	of.
Calabar bean.	Jalap.	Rhubarb.
Castor oil.	Magnesia.	Scammony.
Cold.	Magnesium, sulphate	Senna.
Colocynth.	and carbonate of.	Soap.
Croton oil.	Mercury with chalk.	Strychnia.
Electricity.	Nux vomica.	Sulphates.
Enemata.	Oil of turpentine.	Sulphur.
Friedrichshall water.	Oranges.	Tar.
Gamboge.		Tobacco.

**Contusions—**

Acetic acid.  
Alcohol.  
Ammonium, acetate  
and chloride of.

Arnica.  
Camphor.  
Cold.  
Hops.

Olive oil.  
Sulphurous acid.  
(See Sprain.)

**Convulsions—**

Ammonium, carbon-  
ate of.  
Amyl, nitrite of.  
Anæsthetics.  
Assafoetida.  
Bloodletting.  
Camphor, monobro-  
mated.

Chloral.  
Chloroform.  
Counter-irritants.  
Ether.  
Ice.  
Ice-bag, spinal.  
Indian hemp.  
Morphia.

Musk.  
Mustard.  
Physostigma.  
Potassium, bromide  
Tartar emetic. [of.  
Veratrum viride.  
Zinc, oxide, and va-  
lerianate of.

**Coryza—**

Acetic acid.  
Aconite.  
Ammonia.  
Ammonium, chloride  
Arsenic. [of.

Bath, Turkish.  
Camphor.  
Cubebs.  
Glycérine.  
Iodine.

Opium.  
Potassium, bromide,  
chlorate, and iodide  
Sulphurous acid. [of.  
Tannic acid.

**Cough—**

Alcohol.  
Alum.  
Assafoetida.  
Bath, Turkish.  
Belladonna.  
Chloral.  
Chloroform.  
Cod-liver oil.  
Conium.

Croton chloral.  
Gelsemium.  
Glycerite of tannic  
acid.  
Gum Arabic.  
Hydrocyanic acid.  
Indian hemp.  
Iodine.  
Ipecacuanha.

Licorice.  
Morphia.  
Opium.  
Spirit of nitrous  
ether.  
Tar-water.  
Tobacco.  
Wild cherry.  
Zinc, valerianate of.

**Croup—**

Aconite.  
Alum.  
Blisters.  
Bloodletting  
Calomel.  
Carbolic acid.  
Canterization.  
Copper, sulphate of.  
Dry cupping.

Eucalyptus.  
Hot water.  
Ipecacuanha.  
Lime-water.  
Lobelia.  
Mercury.  
Musk.  
Potassium, chlorate  
and iodide of.

Sanguinaria.  
Senega.  
Silver, nitrate of.  
Squill.  
Sulphurous acid.  
Tannic acid.  
Tartar emetic.  
Zinc, sulphate of.

**Cystitis—**

Alkalies.  
Buchu.  
Cantharides.  
Carbolic acid.  
Copaiba.  
Cubebs.

Enemata, warm.  
Iodine.  
Iodoform.  
Juniper.  
Oil of turpentine.

Opium.  
Pareira.  
Tannic acid.  
Uva ursi.  
(See Bladder.)

**Deafness—**

Chloroform.  
Creasote.  
Electricity.

Ether.  
Glycerine.

Glycerite of tannic  
acid.  
Oil of turpentine.



**Debility—**

Alcohol.	Calumbo.	Quinia.
Arsenic. [ish].	Cod-liver oil.	Sodium, hypophosphate of.
Bath (sea and Turk-)	Gentian.	Wild cherry.
Calcium, hypophosphate and phosphate of.	Iron.	(See Adynamia.)
	Quassia.	

**Delirium—**

Belladonna.	Ether.	Stramonium.
Chloral.	Ice.	Tartar emetic.
Cold douche.	Opium. [of.	(See Cerebral excitement.)
Digitalis.	Potassium, bromide	

**Delirium Tremens—**

Aconite.	Cinchona.	Lupulin.
Alcohol.	Cold.	Morphia.
Belladonna.	Croton oil.	Mustard.
Bromides.	Digitalis.	Opium.
Camphor, monobromated.	Ether.	Tartar emetic.
Capsicum.	Hops.	Valerian.
Chloral.	Ice.	Veratrum viride.
Chloroform.	Indian hemp.	Wines.

**Dermatitis—**

Astringents.	Corrosive sublimate.	Starch.
Black wash.	Lead-water.	

**Diabetes—**

Ammonium, carbonate of.	Creasote.	Potassium, bicarbonate and bromide of.
Arsenic.	Ergot.	Quinia.
Bath (vapor and warm).	Iron.	Skinmed milk.
Bran.	Glycerine.	Sodium, bicarbonate of.
Bromides.	Jaborandi.	Strychnia.
Carbolic acid.	Magnesia.	Tartar emetic.
Cod-liver oil.	Nitric acid.	Valerian.
	Opium.	
	Oxygen.	

**Diarrhoea—**

Alkalies.	Camphor.	Ergot.
Alum.	Capsicum.	Erigeron.
Ammonia. [of.	Castor oil.	Eucalyptus.
Ammonium, chloride	Catechu.	Galls.
Antacids.	Cerium, oxalate of.	Geranium.
Aromatics.	Chalk mixture.	Hæmatoxylon.
Arsenic.	Chamomile.	Ice-bag, spinal.
Belladonna.	Charcoal.	Ipecacuanha.
Benzoin. [of.	Chloroform.	Iron, nitrate and sulphate of.
Bismuth, subnitrate	Cinnamon.	Kino.
Blackberry.	Cod-liver oil.	Koumiss.
Burgundy pitch.	Cold bathing.	Lead, acetate of.
Calcium, carbonate and phosphate of.	Copper, sulphate of.	Limewater.
Calomel.	Corrosive sublimate.	Magnesia.
	Enemata.	

**Diarrhoea—continued.**

Magnesium, sulphate of.  
 Mercury with chalk.  
 Mustard.  
 Nitrous acid.  
 Nitric acid.  
 Nitromuriatic acid.  
 Nux vomica.  
 Oil of cajeput.

Opium.  
 Pepsin.  
 Podophyllum.  
 Potassium, chlorate of.  
 Rhatany.  
 Rhubarb.  
 Salicin.  
 Salicylic acid.

Silver, nitrate of.  
 Strychnia.  
 Sugar of milk.  
 Sulphuric acid.  
 Tannic acid.  
 Veratrum album.  
 Zinc, oxide and sulphate of.

**Diphtheria—**

Alum.  
 Bromine.  
 Capsicum.  
 Carbolic acid.  
 Cauterization.  
 Chloral.  
 Chlorinated soda.  
 Chlorine solutions.  
 Cubebs.  
 Hypophosphites.  
 Ice.  
 Iodine.

Ipecacuanha.  
 Iron, chloride and sulphate of.  
 Lime-water.  
 Muriatic acid.  
 Oil of turpentine.  
 Opium.  
 Phosphites.  
 Potassium, bromide, chlorate, and permanganate of.

Quinia.  
 Salicylic acid.  
 Silver, nitrate of.  
 Sodium, sulphate and sulphocarbolate of.  
 Strychnia.  
 Sulphurous acid.  
 Tannic acid.  
 Zinc, sulphate of.

**Dropsy—**

Acupuncture.  
 Ammonium, acetate and chloride of.  
 Blisters.  
 Buchu.  
 Calomel.  
 Cantharides.  
 Cinchona.  
 Colchicum.  
 Colocynth.  
 Copaiba.  
 Croton oil.  
 Digitalis.

Elaterium.  
 Electricity.  
 Erigeron.  
 Gamboge.  
 Gin.  
 Hydrocyanic acid.  
 Iodine.  
 Iron, iodide of.  
 Jalap.  
 Juniper.  
 Manganese.  
 Mercury.  
 Podophyllum.

Potassa, solution of.  
 Potassium, acetate, bitartrate, bromide, chlorate, iodide, and nitrate of.  
 Senega.  
 Spirit of nitrous ether.  
 Squill.  
 Strychnia.  
 Taraxacum.  
 Uva ursi.  
 Veratria.

**Dysentery—**

Aconite.  
 Alum.  
 Bath, warm.  
 Bismuth, subnitrate  
 Calomel. [of.  
 Cascarilla.  
 Castor oil.  
 Cerium, oxalate of.  
 Cinchona.  
 Copaiba.  
 Corrosive sublimate.  
 Cotton.  
 Enemata.

Ergot.  
 Erigeron.  
 Flaxseed.  
 Glycerine.  
 Hamamelis.  
 Iced enemata.  
 Iodine.  
 Ipecacuanha.  
 Lead, acetate of.  
 Magnesium, sulphate of.  
 Morphia.  
 Nitric acid.

Nitrous acid.  
 Nux vomica.  
 Oil of turpentine.  
 Opium.  
 Potassium, chlorate  
 Poultices. [of.  
 Rhatany.  
 Rhubarb.  
 Salicylic acid.  
 Silver, nitrate of.  
 Sodium, nitrate of.  
 Starch.  
 Zinc, sulphate of.

**Dysmenorrhœa—**

Aloes.	Camphor.	Guaïac.
Amyl, nitrite of.	Cantharides.	Iodine.
Ammonium, acetate and chloride of.	Castor.	Indian hemp.
Apiol.	Chamomile.	Massage.
Arsenic.	Chloroform.	Nux vomica.
Belladonna.	Cotton.	Rue.
Borax.	Electricity.	Savine.
	Ether.	

**Dyspepsia—**

Absinthium.	Cinchona.	Opium.
Acids, mineral.	Cod-liver oil.	Pepsin.
Alcohol.	Cold-water.	Piperin.
Alkalies.	Conium.	Podophyllum.
Aloes.	Creasote.	Quassia.
Ammonium, carbon-	Electricity.	Quinia.
Antacids. [ate of.	Gentian.	Rhubarb.
Arsenic.	Ginger.	Salicin.
Assafoetida.	Hops.	Sanguinaria.
Belladonna. [of.	Hydrocyanic acid.	Senna.
Bismuth, subnitrate	Ipecacuanha.	Silver, nitrate of.
Calabar bean.	Iron.	Sodium, carbonate and sulphite of.
Calumbo.	Mercury with chalk.	Strychnia.
Capsicum.	Magnesia.	Sulphurous acid.
Carbolic acid.	Morphia.	Tannic acid.
Cascarilla.	Muriatic acid.	Taraxacum.
Chamomile.	Nitric acid.	Zinc, sulphate of.
Charcoal.	Nux vomica.	

**Dysuria—**

Cantharides.	Potassium, citrate of.	(See Strangury.)
Conium.	Spirit of nitrous ether.	

**Ecthyma—**

Acids, mineral.	Laxatives.	Quinia.
Baths, alkaline.	Lead, subacetate of.	Silver, nitrate of.
Carbolic acid.	Poultices.	Zinc, oxide of.
Iron.		

**Eczema—**

Alkaline lotions.	Carbolic acid.	Lead, acetate of.
Alum.	Chloral.	Lead-plaster and lin- seed oil.
Arsenic.	Cinchona.	Lime-water.
Bath (Turkish and warm).	Cod-liver oil.	Lycopodium.
Benzoin.	Dulcamara.	Magnesium, carbon-
Bismuth.	Glycerine.	Mercury. [ate of.
Black wash.	Glycerite of starch, or of tannic acid.	Mercury, vapor of.
Blisters.	Green soap.	Oil of cade.
Borax.	Hot water.	Oils.
Calcium, carbonate of.	Iron.	Potassium, carbonate and cyanide of.
Camphor.	Laxatives.	

**Eczema—continued.**

Potassa.	Soap.	Tannic acid.
Poultices.	Starch.	Tar.
Quinia.	Sulphides.	Zinc, oxide and carbonate of.
Silver, nitrate of.	Sulphur.	

**Emphysema—**

Ammonia.	Cod-liver oil.	Jaborandi.
Arsenic.	Ether.	Lobelia.
Camphor.	Hydrocyanic acid.	Quinia.
Chloral.	Iron.	Stramonium.

**Empyema—**

Carbolic acid.	Chlorine, solutions of.	Iodine.
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**Endocarditis—**

Alkalies.	Blisters.	Potassium, bicarbonate and iodide of.
Ammonia, aromatic spirit of.	Mercury, preparations of.	Poultices.
Ammonium, carbonate of.	Opium.	Sodium, carbonate of.
		Vapor-bath.

**Enteritis—**

Bath, warm.	Enemata.	Opium.
Calomel.	Flaxseed.	Silver, nitrate of.
Cerium, oxalate of.	[of. Magnesium, sulphate]	(See Dysentery, etc.)

**Epilepsy—**

Ammonium, bromide and carbonate of.	Cinchona.	Opium.
Amyl, nitrite of.	Conium.	Potassium, bromide of.
Arsenic.	Copper, salts of.	Santonin.
Belladonna.	Counter-irritants.	Silver, oxide and nitrate of.
Blisters.	Digitalis.	Sodium, bromide of.
Bromides.	Electricity.	Stramonium.
Calabar bean.	Hyoscyamus.	Tartar emetic.
Camphor.	Ice-bag, spinal.	Valerian.
Camphor, monobromated.	Iron.	Zinc, oxide and sulphate of.
Chloral.	Lithium, bromide of.	
	Musk.	
	Nux vomica.	

**Epistaxis—**

Aconite.	Ergot.	Potassium, bromide of.
Alum.	Hamamelis.	Tannic acid.
Compression.	Hot-water bag, spinal.	
Digitalis.		

**Erysipelas—**

Aconite.	Iodine.	Quinia.
Belladonna.	Iron, chloride and sulphate of.	Salicylic acid.
Carbolic acid.	Lead, nitrate of.	Silver, nitrate of.
Chloral.	Mercury.	Sodium, sulphite and sulphocarbonate of.
Cinchona.	Oil of turpentine.	Sulphurous acid.
Collodion.		

**Erythema—**

Alcoholic lotions.	Camphor.	Starch.
Bath (vapor and warm).	Carbolic acid.	Tonics. [oxide of
	Lead, subacetate of.	Zinc, carbonate and

**Favus.** See *Tinea favosa*.

**Fevers—**

Acetic acid.	Chloral.	Potassium, acetate,
Acid drinks.	Chlorine.	chlorate, and ci-
Aconite.	Cinchona.	trate of.
Alcohol.	Citric acid.	Quinia.
Alkalies.	Cold affusion.	Quinia, bromhydrate
Ammonium, acetate	Conium.	Salicin. [of.
and chloride of.	Digitalis.	Salicylic acid.
Arsenic.	Glycerine.	Sodium, salicylate of.
Bath (warm, tepid,	Ice.	Spirit of nitrous ether.
etc.).	Jaborandi.	Sponging, warm.
Belladonna.	Magnesium, sulphate	Strychnia.
Blisters.	of.	Sulphuric acid.
Calcium, phosphate	Musk.	Tartar emetic.
of.	Mustard.	Wine.
Camphor.	Opium.	(See Typhoid, Ty-
Castor oil.		phus, etc.)

**Fissure of Anus, etc.—**

Belladonna.	Distension, forcible.	Opium.
Benzoic acid.	Galls.	Potassium, bromide
Castor oil.	Ice.	of.
Chloral.	Iodoform	Sulphur.

**Fissure of Nipple.** See Nipple.

**Flatulence—**

Ammonia.	Charcoal.	Oils, essential.
Aromatics.	Chloroform.	Phosphorus.
Assafoetida.	Diet.	Sodium, sulphite of.
Bismuth.	Ipecacuanha.	Sulphocarbonates.
Capsicum.	Mercury with chalk.	Sulphurous acid.
Carbolic acid.	Nux vomica.	

**Fragilitas Ossium—**

Cod-liver oil.	Iron.	Quinia.
Corrosive sublimate.	Phosphates.	Tonics.

**Freckles—**

Benzoin.	Mercury.	Zinc, sulphocarbonate
Borax.		(See <i>Chloasma</i> .) [of.

**Frostbite—**

Camphor.	Lime, chlorinated.	Silver, nitrate of.
Iodine.	Oil of turpentine.	(See Chilblains.)

**Galactorrhoea—**

Alcohol.	Ergot.	Quinia.
Belladonna.	Gallic acid.	Tannic acid.
Camphor.	Iodine.	Tobacco.
Conium.	Potassium, iodide of.	

**Gall-stones.** See Calculi, biliary.

**Gangrene—**

Aconite.	Charcoal	Oil of turpentine.
Ammonium, chloride of.	Chlorine.	Opium.
Bromine.	Creasote.	Potassium, chlorate, iodide, and permanganate of.
Camphor.	Iodine.	Savine.
Cantharides.	Lead.	Sulphuric acid.
Carbolic acid.	Nitric acid.	
	Oak bark.	

**Gastralgia—**

Alum.	Bismuth, subnitrate of.	Nux vomica.
Ammonia, aromatic spirit of.	Hydrocyanic acid.	Opium.
Amyl, nitrite of.	Manganese.	Potassium, bicarbonate of. [of.
Arsenic.	Morphia.	Sodium, bicarbonate

**Gastro Catarrh—**

Ammonium, chloride of.	Bismuth, subnitrate of.	Silver, oxide and nitrate of.
	Cerium, oxalate of.	Sodium, sulphite of.

**Gastro Ulcer—**

Cerium, oxalate of.	Mustard.	Opium.
Cold.	Nutritive enemata.	Potassium, iodide of.
Fomentations.	Oil of turpentine.	Silver, nitrate of.

**Gastritis.** See Stomach, inflammation of.

**Gastrodynia.** See Gastralgia.

**Glands, Enlarged—**

Ammonium, carbonate and chloride of.	Conium.	Oleate of mercury and morphia.
Flisters.	Ergot.	Potassium, acetate and iodide.
Carbolic acid.	Iodine.	
	Mercury.	

**Gleet—**

Ammonium, chloride of.	Copper, sulphate of.	Mercury, nitrate of.
Belladonna.	Glycerite of tannic acid.	Oil of sandal wood.
Bismuth.	Iodine.	Oil of turpentine.
Blisters.	Iron, tincture of chloride of.	Opium.
Buchu.	Lead, acetate of.	Silver, nitrate of.
Cantharides.	Lime-water.	Zinc, chloride and sulphate of.
Copaiba.		(See Gonorrhœa.)

**Goitre.** See Bronchocele.

**Goitre, Exophthalmic.** See Graves's Disease.

**Gonorrhœa—**

Aconite.	Cantharides.	Corrosive sublimate.
Alkalies.	Chloral.	Cubebs.
Atropia.	Colchicum.	Eucalyptus.
Benzoic acid.	Colocynth.	Glycerite of tannic acid.
Bismuth.	Copaiba.	Indian hemp.
Blisters.	Copper, sulphate of.	

**Gonorrhœa—continued.**

Injectious.	Oil of sandal wood.	Silver, nitrate of.
Iron, chloride and sulphate of.	Oil of turpentine.	Sulphuric acid.
Jalap.	Opium.	Tartar emetic.
Lead, acetate of.	Potassium, bromide and permanganate	Zinc, acetate, chloride, sulphate, and sulphocarbolate of.
Lime, chlorinated.	Quinia. [of.	
Matico.	Salicylic acid.	(See Gleet.)

**Gout—**

Aconite.	Dulcamara.	Opium.
Ammonium, carbonate and phosphate of.	Guaiaac.	Potassium, citrate and iodide of.
Arsenic.	Iodine.	Salicylic acid.
Bath, Turkish.	Iodoform.	Savine.
Blisters.	Lithium, benzoate, carbonate, and citrate of.	Sodium, carbonate and salicylate of.
Cinchona.	Lupulin.	Strychnia.
Cod-liver oil.	Magnesia.	Sulphides.
Colchicum.	Musk.	Sulphurous acid.
Colloidion.	Oil of peppermint.	Veratria.

**Gravel—**

Juniper.	Potassium, carbonate of.	Spirit of nitrous ether.
Lime.	Sodium, carbonate of.	Sulphuric acid.
Magnesia.		Uva ursi.
Opium.		

**Graves's Disease—**

Cod-liver oil	Digitalis.	Iodine.
Cold douche.	Ice.	Wild cherry.

**Hæmatemesis—**

Alum.	Hamamelis.	Rhatany.
Cold.	Iron, subsulphate of.	Sulphuric acid.
Ergot.	Lead, acetate of.	Tannic acid.
Gallic acid.	Oil of turpentine.	

**Hæmaturia —**

Alum.	Gallic acid.	Quinia.
Copaiba.	Hamamelis.	Tannic acid.
Ergot.	Oil of turpentine.	

**Hæmoptysis—**

Alum.	Hamamelis.	Lead, acetate of.
Chloroform.	Hot-water bag, spinal.	Morphia.
Cold.	Inhalations, astringent.	Oil of turpentine.
Digitalis.	Ipecacuanha. [gent.	Opium.
Ergot.	Iron, acetate and subsulphate of	Sulphuric acid.
Gallic acid.		Tannic acid.

**Hay Fever—**

Antispasmodics.	Iron.	Quinia.
Arsenic.	Nux vomica.	Tobacco.
Inhalations, atomized.		

**Headache—**

Acetic acid.	Cold affusion.	Oil of cajeput.
Aconite.	Digitalis.	Opium.
Actæa racemosa.	Ergot.	Podophyllum.
Alcohol.	Ether spray.	Potassium, bromide
Ammonia.	Friedrichshall water.	and iodide of.
Ammonium, acetate,	Guarana.	Poultices.
carbonate, chloride,	Hot sponging.	Purging.
and valerianate of.	Hot water.	Spirit of nitrous ether.
Amyl, nitrite of.	Ice-bag.	Strychnia.
Antacids.	Lavender.	Tea.
Arsenic.	Magnesia.	Veratrum album.
Belladonna.	Mercurial pill.	Veratrum viride.
Blisters.	Morphia.	Zinc, oxide of.
Bromides.	Mustard.	(See Sick Headache
Caffein.	Nectandra.	and Migraine.)
Camphor.		

**Heart, Dilatation of—**

Antispasmodics.	Chalybeates.	Tonics.
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**Heart, Functional Derangement of—**

Ammonia.	Hyoscyamus.	Quinia.
Belladonna.	Iron.	Strychnia.
Digitalis.	Lupulin.	Wild cherry.
Ether.	Opium.	

**Heart, Hypertrophy of—**

Aconite.	Digitalis.	Wild cherry.
Ammonia.	Ether.	

**Hemiorania. See Migraine.****Hemiplegia—**

Blisters.	Electricity.	Strychnia.
Cathartics.	Potassium, iodide of.	(See Paralysis.)

**Hemorrhage—**

Acetic acid.	Dover's powder.	Mercury.
Acids.	Ergot.	Oak bark.
Alcohol.	Erigeron.	Oil of turpentine.
Alum.	Gallic acid.	Opium.
Astringents.	Hamamelis.	Quinia.
Cantharides.	Hæmatoxyton.	Khatany.
Chromic acid.	Hot-water bag, spinal.	Silver, nitrate of.
Cinchona.	Hyoscyamus.	Sulphuric acid.
Citric acid.	Ice.	Tannic acid.
Cold.	Ipecacuanha.	Tartar emetic.
Collodion.	Iron, acetate, ammo-	Transfusion.
Copper, sulphate of.	nio-sulphate, chlo-	Zinc, sulphate of.
Creasote.	ride, and sulphate	(See Hæmoptysis,
Digitalis.	Lead, acetate of. [of.	Hæmaturia, etc.)

**Hemorrhage, Gastric. See Hæmatemesis.**



**Hemorrhage, Intestinal—**

Bismuth.	Galloic acid.	Logwood.
Catechu.	Iron alum.	Opium. (See Dysen-
Copper, sulphate of.	Kino.	tery and Hemor-
		rhage.)

**Hemorrhage, Pulmonary.** See Hæmoptysis.

**Hemorrhage, Uterine—**

Catechu.	Hemp.	Lead, acetate of.
Cinnamon.	Hot water injections.	Potassium, bromide
Cold.	Iodoform.	of.
Corrosive sublimate.	Iron, perchloride and	Savine.
Electricity.	ammonio-sulphate	Sulphuric acid, aro-
Ergot.	of.	matic.
Galloic acid.		

**Hemorrhoids.** See Piles.

**Hepatitis—**

Ammonium, chloride	Leeches.	Opium.
Blisters. [of.	Mercury.	Purgatives.
Ipecacuanha.	Nitromuriatic acid.	Taraxacum.

**Hernia—**

Belladonna.	Iodine.	Tartar emetic.
Cold.	Potassa.	Tobacco.
Ether.		

**Herpes—**

Acetic acid.	Lead, subacetate of.	Starch.
Collodion.	Oleate of morphia.	Tar.
Fomentations, hot.	Silver, nitrate of.	Zinc, oxide of.
Iodine.		

**Herpes Zoster—**

Atropia.	Iron.	Quinia.
Collodion.	Morphia.	Starch.
Electricity.	Nux vomica.	Zinc, phosphide of.
Ergot.	Phosphorus.	

**Hiccup—**

Belladonna.	Cinchona.	Mustard.
Camphor.	Ether.	Oils, essential.
Chloral.	Morphia.	Tobacco.
Chloroform.	Musk.	

**Hoarseness—**

Alum.	Glycerite of tannic	Nitric acid.
Bath, Turkish.	acid.	Sulphurous acid.
Borax.	Guaiaac.	White of egg.
Catechu.	Lemon juice.	

**Whooping-Cough.** See Whooping-Cough.

**Hydrocele—**

Ammonium, chloride	Digitalis.	Potassium, chlorate
of.	Electricity.	of.
Carbolic acid.	Iodine.	Squill.

**Hydrocephalus, Acute—**

Bromine.	Laxatives.	Potassium, iodide of.
Cold.	Leeches.	Purgatives.
Iodine.	Mercury.	Tartar emetic.

**Hydrocephalus, Chronic—**

Aperients.	Compression.	Mercury.
Calomel.	Glycerine.	Potassium, acetate
Cod-liver oil.	Iron, iodide of.	and iodide of.
Cold douche.	Issue.	Squill.

**Hydrophobia—**

Acetic acid.	Chloroform.	Silver, nitrate of.
Amyl, nitrite of.	Escharotics.	Sodium, hyposulphite
Atropia.	Excision.	and sulphite of.
Cantharides.	Morphia.	Strychnia.
Chloral.		

**Hypochondriasis—**

Assafoetida.	Hyoscyamus.	Potassium, bromide
Bathing, sea.	Physical training.	of.
Cinchona.		Tonics.

**Hysteria—**

Aconite.	Cod-liver oil.	Oils, volatile.
Alcohol.	Cold.	Opium.
Antispasmodics.	Electricity.	Phosphorus.
Assafoetida.	Ether.	Potassium, bromide
Bathing, sea, etc.	Garlic.	of.
Bromides.	Gold and sodium,	Quinia.
Camphor.	chloride of.	Spirit of nitrous ether.
Camphor, monobromated.	Indian hemp.	Valerian.
Castor.	Iron.	Zinc, phosphide and
Chloroform.	Musk.	valerianate of.
	Nux vomica.	

**Ichthyosis—**

Arsenic.	Baths (alkaline, vapor, and warm).	Cod-liver oil.
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**Impetigo—**

Arsenic.	Lead.	Purgatives, saline.
Baths (vapor and warm).	Mercury, ammoniated.	Quinia.
Cod-liver oil.	Mercury, nitrate of.	Silver, nitrate of.
Copper, sulphate of.	Nitric acid.	Sulphur.
Creasote.	Oils.	Zinc, carbonate and oxide of.
Glycerine.		

**Impotence—**

Cantharides.	Oil of turpentine.	Strychnia.
Electricity.	Phosphorus.	Zinc, phosphide of.
Nux vomica.		

**Incontinence of Urine—**

Baths (warm, salt, and tepid).	Bromides.	Chromic acid.
Belladonna.	Buchu.	Cubebs.
Benzoin.	Cantharides.	Ergot.
	Chloral.	Hops.

**Incontinence of Urine**—*continued.*

Hyoscyamus.	Nitro-muriatic acid.	Potassa, solution of.
Iodine.	Nux vomica.	Potassium, nitrate of.
Iron, bromide, iodide, and perchloride of.	Oil of turpentine.	Strychnia.
Lupulin.	Opium.	Triticum repens.
	Pareira.	

**Inflammation**—

Aconite.	Cold.	Iodine.
Alcohol.	Corrosive sublimate.	Mercury.
Ammonium, chloride	Digitalis.	Opium.
Belladonna. [of.	Dover's powder.	Pontices.
Bloodletting.	Ether	Purgatives.
Camphor.	Fomentations.	Sulphides.
Chlorinated lime.	Hydrocyanic acid.	Tartar emetic.
Cod-liver oil.	Ice.	Veratrum viride.

**Influenza**—

Actæa racemosa. [of.	Baths (vapor or warm).	Jaborandi.
Ammonium, chloride	Dover's powder.	Mustard.
Ammonium, solution of acetate of.	Flaxseed.	Sulphurous acid.

**Insanity.** See Mania, Melancholia, etc.**Insomnia**—

Alcohol.	Codeia.	Iodoform.
Bath, warm.	Cold.	Morphia.
Belladonna.	Conium.	Opium.
Bromides.	Croton chloral.	Potassium, bromide of.
Camphor, monobro- mated.	Ether.	Tartar emetic.
Chloral.	Hemp.	Zinc, phosphide of.
Chloroform.	Hyoscyamus.	

**Intermittent Fever**—

Ammonium, carbazo- tate and chloride of.	Cinchonia.	Quinia.
Amyl, nitrite of.	Cinchonidia.	Quinia, bromhydrate of.
Angustura.	Copper, sulphate of.	Quinidia.
Apiol.	Eucalyptus.	Quinoidine.
Arsenic.	Hops.	Salicin.
Bromides.	Iodine.	Salicylic acid.
Cantharides.	Ipecacuanha.	Santonin.
Capsicum.	Iron.	Sodium, salicylate and sulphite of.
Cascarilla.	Nitric acid.	Tartar emetic.
Chamomile.	Nux vomica.	Zinc, sulphate of.
Chloroform.	Opium.	
Cinchona.	Piperin.	

**Intertrigo**—

Bismuth, subcarbon- ate and subnitrate of.	Chalk.	Silver, nitrate of.
Calcium, carbonate of.	Glycerite of tannic acid.	Soap.
Camphor.	Lycopodium.	Zinc, oxide and pre- cipitated carbonate (See Erythema.) [of.
	Sage.	

**Iritis—**

Atropia.	Calabar bean.	Oil of turpentine.
Belladonna.	Mercury.	Salicylic acid.

**Itch.** See Scabies.

**Jaundice—**

Acids, mineral.	Lemon juice.	Podophyllum.
Alkalies.	Magnesium, carbonate	Potassium, salts of.
Aloes.	and sulphate of.	Purgatives.
Belladonna.	Mercury.	Silver, nitrate of.
Benzoic acid.	Nitric acid.	Sodium, sulphate of.
Citric acid.	Nitromuriatic acid.	Taraxacum.
Ipecacuanha.		

**Joints, Affections of—**

Baths (alkaline, arsenical, and sulphur).	Cod-liver oil.	Massage.
Blisters.	Conium.	Mercury.
Cold douche.	Digitalis.	Oleate of mercury.
	Galvanism.	Sulphuric acid.
	Iodine.	(See Arthritis.)

**Lactation, Defective—**

Aniseed.	Cotton.	Fennel.
Calabar bean.	Electricity.	Sage.
Castor oil.		

**Lactation, Excessive.** See Galactorrhœa.

**Laryngismus Stridulus—**

Amonia.	Cod-liver oil.	Musk.
Assafetida.	Cold affusion.	Mustard.
Belladonna.	Electricity.	Potassium, bromide
Chloral.	Ether.	of.
Chloroform.	Ice-bag, spinal.	Sponging, cold.
Cinchona.	Lobelia.	Valerian.

**Laryngitis—**

Aconite.	Glycerine.	Opium.
Alum.	Hot water.	Potassium, chlorate
Balsam of Peru.	Inhalations, atomized.	of.
Belladonna.	Iodine.	Silver, nitrate of.
Carbolic acid.	Ipecacuanha.	Sugar.
Catechu.	Lime.	Sulphurous acid.
Copper, sulphate	Mercury.	Tannic acid.
Diaphoretics.	Morphia.	Tartar emetic.
Dover's powder.	Mustard.	

**Lead Paralysis—**

Baths (warm and sulphur).	Friction.	Strychnia.
Electricity.	Potassium, iodide of.	Sulphuric acid

**Lepra.** See Psoriasis.

**Leucæmia—**

Cinchona.	Iodine.	Quinia.
Cod-liver oil.	Iron.	Phosphorus.
Ergot.		

**Leucorrhœa—**

Alkalies.	Copper, sulphate of.	Oak bark.
Aloes.	Creasote.	Potassium, bicarbon-
Alum.	Cubebs.	ate, chlorate, and
Ammonium, chloride	Ergot.	permanganate of.
of.	Glycerine.	Pyroligneous acid.
Arsenic.	Ice-bug, spinal.	Rhatany.
Belladonna.	Injections, vaginal.	Silver, nitrate of.
Bismuth.	Iodine.	Sodium, bicarbonate
Calcium, phosphate	Iron.	of.
of.	Kino.	Sponging, cold.
Cantharides.	Lead, acetate of.	Tannic acid.
Carbolic acid.	Lime-water.	Zinc, acetate and sul-
Copaiba.	Mercury.	phate of.

**Lichen—**

Alkalies.	Chloroform.	Mercury, nitrate of.
Arsenic.	Cod-liver oil.	Silver, nitrate of.
Baths (alkaline and	Corrosive sublimate.	Sulphides.
warm).	Hydrocyanic acid.	Tar.
Calomel.	Iron.	Tonics.
Cantharides.	Laxatives.	Zinc, oxide of.
Carbolic acid.	Lead-water.	

**Lithiasis—**

Ammonium, carbon-	Magnesia.	Potassium, acetate of.
ate of.	Potassa, solution of.	Sodium, carbonate of.
Lithium, carbonate of.		

**Liver, Cirrhosis of—**

Aperients.	Iodine.	Nitro-muriatic acid.
Blisters.	Iron, iodide of.	Potassium, iodide of.
Cupping.	Leeching.	Quinia.

**Liver, Congestion of—**

Lemon-juice.	Nitric acid.	Taraxacum.
Mineral waters.	Saline purgatives.	

**Liver, Hypertrophy of—**

Ammonium, chloride	Bromides.	Podophyllum.
of.	Nitromuriatic acid.	Sodium, carbonate of.

**Liver, Inflammation of.** See Hepatitis.**Locomotor Ataxy—**

Baths, sulphur.	Galvanism.	Opium.
Belladonna.	Indian hemp.	Phosphorus.
Blisters.	Iodine.	Silver, nitrate of.
Cod-liver oil.	Leeches.	

**Lumbago—**

Actæa racemosa.	Corrosive sublimate.	Morphia.
Arsenic.	Ether spray.	Potassium, iodide and
Bath, warm.	Galvanism.	nitrate of.
Belladonna.	Ice.	Poultices.
Calabar bean.	Iodine.	Veratrum viride.
Capsicum.	Massage.	(See Rheumatism.)
Cimicifuga.	Mercury.	

**Lungs, Inflammation of.** See Pneumonia.

**Lupus—**

Arsenic.	Iodine.	Potassium, iodide of.
Blisters.	Lead.	Silver, nitrate of.
Calomel.	Mercury, acid nitrate	Soft soap.
Carbolic acid.	and iodide of.	Sulphur.
Caustics.	Mercurial ointment.	Sulphur, iodide of.
Chronic acid.	Nitric acid.	Tar.
Cod-liver oil.	Phosphorus.	Zinc, chloride, iodide,
Corrosive sublimate.	Potassa.	and nitrate of.
Glycerine.		

**Mania—**

Actæa racemosa.	Croton oil.	Opium.
Blisters.	Ergot.	Phosphorus.
Camphor.	Ether.	Potassium, bromide
Chloral.	Hyoscyamus.	of.
Cold douche.	Indian hemp.	Tartar emetic.
Conium.	Morphia.	

**Mania a Potu.** See Delirium Tremens.

**Mania, Puerperal.** See Puerperal.

**Marasmus.** See Tabes Mesenterica.

**Measles—**

Aconite.	Diaphoretics.	Mustard.
Ammonia, carbonate	Fat.	Purgatives.
Cold affusion. [of.	Lard.	Veratrum viride.

**Melancholia—**

Alcohol.	Hemp.	Potassium, bromide
Amyl, nitrite of.	Musk.	of.
Camphor.	Phosphorus.	

**Meningitis—**

Antimonial ointment.	Digitalis.	Opium.
Antiphlogistics.	Ice.	Potassium, bromide
Blisters.	Iodine.	and iodide of.
Bromine.	Leeches.	Purgatives.
Chloral.	Mercury.	Tartar emetic.
Cold.	Mustard.	(See Hydrocephalus )
Croton oil.		

**Meningitis, Cerebro-spinal—**

Blisters.	Cinchona.	Morphia.
Bloodletting.	Cold.	Purgings.
Calomel.	Leeches.	(See Meningitis.)

**Menorrhagia—**

Actæa racemosa.	Ergot.	Leeches.
Aloes.	Erigeron.	Oil of turpentine.
Alum.	Gallie acid.	Phosphates.
Ammonium, acetate	Hot water bag, spinal.	Potassium, bromide
and chloride of.	Indian hemp.	Quinia. [of.
Borax.	Iron, chloride of.	Rhatany.
Calcium, phosphate	Ipecacuanha.	Savine.
Cold. [of.	Kino.	Transfusion.
Digitalis.	Lead.	Zinc, phosphide of.

**Metritis—**

Antiphlogistics.	Leeches.	Potassium, bromide
Baths (hot hip).	Mercury.	and iodide of.
Belladonna.	Opium.	Warm douches.

**Metrorrhagia.** See Hemorrhage, uterine, and Menorrhagia.

**Migraine—**

Ammonium, chloride of.	Caffein, citrate of.	Potassium, bromide of.
Amyl, nitrite of.	Croton chloral.	(See Headache and Neuralgia.)
Arsenic.	Ergot.	

**Myalgia—**

Ammonium, chloride of.	Ether.	Poultices.
Belladonna.	Iodine.	(See Rheumatism.)
	Opium.	

**Myelitis—**

Hot iron.	Potassium, iodide of.	(See Brain, inflammation of, and Meningitis.)
Moxa.	Silver, nitrate of.	

**Nævus—**

Collodion.	Lime.	Vaccination.
Corrosive sublimate.	Nitric acid.	Zinc, chloride, iodide, and nitrate of.
Creasote.	Potassa.	
Iron.		

**Nephritis—**

Antiphlogistics.	Cups.	Poultices.
Baths (hot hip, hot air, vapor).	Diaphoretics.	Purgatives.
Belladonna.	Leeches.	(See Bright's Disease.)
	Opium.	

**Nervousness—**

Assafœtida.	Potassium, bromide of.	Valerian.
Chloral.		Zinc, phosphide of.
Chloroform.	Sponging, cold.	

**Neuralgia—**

Aconite.	Chloral.	Ice-bag, spinal.
Alcohol.	Chloroform.	Iodine.
Ammonium, chloride	Cinchona.	Iodoform.
Amyl, nitrite of. [of.	Cod-liver oil.	Iron.
Apol.	Colchicum.	Lead.
Arsenic.	Cold.	Morphia.
Assafœtida.	Conium.	Mustard.
Atropia.	Creasote.	Nux vomica.
Belladonna.	Counter-irritation.	Oil of peppermint.
Blisters.	Croton chloral.	Oil of turpentine.
Bromides.	Electricity.	Opium.
Camphor, monobromated.	Ergot.	Phosphorus.
Cannabis.	Ether.	Physostigma.
Capsicum.	Gelsemium.	Potassium, bromide, iodide, and chlorate of.
Chamomile.	Hydrocyanic acid.	
	Hyoscyamus.	

**Neuralgia—continued.**

Quinia.	Sodium, salicylate of.	Veratria.
Quinia, bromhydrate of.	Stramonium.	Veratrum viride.
Salicylic acid.	Strychnia.	Zinc, oxide, phosphate, sulphate, and valerianate of.
Silver, nitrate of.	Sulphur baths.	
	Valerianic acid.	

**Neuritis—**

Aconite.	Potassium, iodide of.	Quinia, bromhydrate of.
Belladonna.	Poultices, sedative.	
Colchicum.	Quinia.	

**Night Sweats—**

Alum.	Ergot.	Sulphuric acid.
Belladonna.	Gallic acid.	(See Perspiration.)

**Nipples, Sore—**

Alcohol.	Collodion.	Silver, nitrate of.
Balsam of Peru.	Copaiba.	Soda, chlorinated.
Benzoin.	Iodoform.	Sulphurous acid.
Borax.	Lead, nitrate of.	Tannic acid.
Brandy and water.	Lime-water.	Tar.
Carbolic acid.	Picric acid.	Zinc, oxide of.
Catechu.	Rhatany.	Zinc shield.
Chloral.	Salicylic acid.	

**Nymphomania—**

Bromides.	Camphor.
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**Obstruction of Bowels—**

Belladonna.	Henbane.	Opium.
Electricity.	Mercury.	Purgatives.
Enemata.	Morphia.	Tobacco.

**Onychia—**

Arsenic.	Corrosive sublimate.	Lead, nitrate of.
Cod-liver oil.	Iron.	Zinc, sulphate of.

**Ophthalmia—**

Alum.	Lead.	Tartar emetic.
Blisters.	Lime, chlorinated.	Zinc, acetate, oxide, and sulphate of.
Cod-liver oil.	Opium.	(See Conjunctivitis.)
Iodine.	Silver, nitrate of.	
Iron.	Tannic acid.	

**Orchitis—**

Antiphlogistics.	Hyoscyamus.	Leeches.
Cold.	Ice.	Mercury.
Compression.	Jaborandi.	Opium.

**Osteomalacia. See Rickets.**

**Otalgia—**

Anæsthetics.	Dover's powder.	Leeches.
Anodynes.	Ether.	Morphia.
Blisters.	Ether, hydrobromic.	Opium.
Chloral.	Laudanum.	Silver, nitrate of.
Chloroform vapor.		



<b>Otitis—</b>		
Anodynes.	Antiphlogistics.	Leeches.
<b>Otorrhœa—</b>		
Alum.	Lead, acetate of.	Salicylic acid.
Glycerite of tannic acid.	Line-water.	Silver, nitrate of.
Iodine.	Potassium, perman- ganate of.	Styptic cotton.
		Zinc, sulphate of.
<b>Oxaluria—</b>		
Nitric acid.	Nitro-muriatic acid.	Sodium, phosphate of.
<b>Ozœna—</b>		
Aluminium, acetate	Glycerite of tannic	Rhatany.
Alum. [of.	Inhalations. [acid.	Salicylic acid.
Bismuth.	Iodine.	Silver, nitrate of.
Carbolic acid.	Lead.	Tannic acid.
Chlorine solutions.	Mercury, nitrate of.	Zinc, chloride and
Cod-liver oil.	Potassium, chlorate	oxide of.
Creasote.	and permanganate	
Electricity.	of.	
<b>Pain—</b>		
Atropia.	Ether.	Potassium, bromide
Baths (warm and	Fomentations.	of.
hot).	Heat.	Poultices.
Belladonna.	Morphia.	Water (hypodermi- cally).
Chloral.	Nitrous oxide.	
Chloreform.	Opium.	
<b>Palpitation—</b>		
Belladonna.	Bromides.	Cinchona.
Bending the body.	Camphor.	Valerian.
<b>Paralysis—</b>		
Belladonna.	Electricity.	Phosphorus.
Calabar bean.	Ergot.	Silver, nitrate of.
Cantharides.	Indian hemp.	Strychnia.
Cinchona.	Iodine.	Toxicodendron.
Conium.	Nux vomica.	(See Hemiplegia,
Counter-irritation.	Oil of cajeput.	Paraplegia, etc.)
<b>Parametritis—</b>		
Aperients.	Hot hip-baths.	Morphia.
Belladonna.	Injectons of hot	Opium.
Blisters.	water.	Poultices.
Conium.	Leeches.	Salicin.
Enemata.	Mercurial ointment.	Suppositories.
Fomentations.		
<b>Paraplegia—</b>		
Belladonna.	Hemp.	Potassium, iodide of.
Cod liver oil.	Hyoscyamus.	Silver, nitrate of.
Ergot.	Phosphorus.	(See Paralysis.)
<b>Pemphigus—</b>		
Ar-enic.	Cod-liver oil.	Nitro-muriatic acid.
Cinchona.	Iron.	Quinia.

<b>Pericarditis—</b>		
Alkaline drinks.	Leeches.	Potassium, bicarbon-
Baths, vapor.	Mercury.	ate and iodide of.
Cold.	Opium.	Poultices.
Digitalis.		Veratrum viride.
<b>Perimetritis—</b>		
Belladonna.	Opium.	Poultices.
<b>Periostitis—</b>		
Blisters.	Leeches.	Phosphates.
Iodine.	Oleate of mercury.	Potassium, iodide of.
Lead.		
<b>Peritonitis, Acute—</b>		
Aconite.	Leeches.	Poultices.
Blisters.	Mercury.	Veratrum viride.
Cold.	Oil of turpentine.	(See Puerperal Peri-
Fomentations.	Opium.	tonitis.)
Iodine.		
<b>Peritonitis, Chronic—</b>		
Blisters.	Iron, iodide of.	Pepsin.
Cod-liver oil.	Liniments, stimulat-	
Iodine.	ing.	
<b>Pernicious Anæmia—</b>		
Arsenic.	Iodine.	Quinia.
Cod-liver oil.	Phosphorus.	Transfusion.
Digitalis.		
<b>Perspiration, Excessive—</b>		
Alum.	Ice-bag, spinal.	Sponging, hot.
Atropia.	Lead plaster.	Sulphuric acid.
Belladonna.	Oils.	Tannic acid.
Chalk.	Quinia.	Zinc, oxide of.
Ergot.	Silver, oxide of.	(See Night Sweats.)
Gallo acid.	Sponging, acid.	
<b>Pharyngitis—</b>		
Alum.	Catechu.	Sage.
Ammonium, chloride	Gum Arabic.	Salicylic acid.
of.	Iodine.	Silver, nitrate of.
Capsicum.	Myrrh. [of.	Tannic acid.
Carbolic acid.	Potassium, chlorate	
<b>Phlebitis—</b>		
Blisters.	Poultices.	Purgatives.
Fomentations.		
<b>Phlegmasia Dolens—</b>		
Blisters.	Fomentations	Lotions, evaporating.
Digitalis.	Leeches.	Opium.
<b>Phthisis—</b>		
Alcohol.	Atropia.	Benzoin.
Arsenic.	Belladonna.	Blisters.

**Phthisis—continued.**

Brandy.	Ether.	Oxygen.
Burgundy pitch.	Eucalyptus.	Phosphates.
Calcium, hypophosphite and phosphate of.	Gallie acid.	Phosphorus.
Carbolic acid.	Gelsemium.	Potassa, solution of.
Chloral.	Glycerine.	Potassium, chlorate of.
Chlorine.	Hypophosphites.	Quinia.
Chloroform.	Indian hemp.	Salicin.
Cinchona.	Inhalations, atomized.	Sea bathing.
Cocoonut oil.	Injections of diluted Lugol's solution.	Silver, nitrate of.
Cod-liver oil.	Iodine.	Sodium, hypophosphite of.
Conium.	Ipecacuanha.	Sponging, hot.
Corrosive sublimate.	Iron.	Sulphuric acid.
Counter irritants.	Kino.	Sulphurous acid.
Creasote.	Lead.	Tannic acid.
Croton chloral.	Morphia.	Taraxacum.
Digitalis.	Oak bark.	Vinegar.
Enemata.	Opium.	Walnut leaves.
		Wild cherry.

**Piles—**

Alum.	Galls.	Podophyllum, resin of.
Amber.	Hamamelis.	Potassium, bitartrate and bromide of.
Calomel.	Iodoform.	Rhubarb.
Carbolic acid.	Iron, chloride of.	Stramonium.
Castor oil.	Lead plaster.	Sulphur.
Chromic acid.	Nitric acid.	Tannic acid.
Cold injections.	Oak bark.	Tobacco.
Cubebs.	Opium.	
Ergot.	Pepper.	
Gallic acid.		

**Pityriasis—**

Aperients.	Glycerine.	Oil of cajeput
Arsenic.	Glycerite of borax.	Oils.
Borax.	Iron.	Quinia.
Chloral.	Mercury, ammoniated and nitrate of.	Sulphurous acid.
Diuretics.		

**Pleurisy—**

Aconite.	Diaphoretics.	Opium.
Aspiration.	Digitalis.	Potassium, iodide and nitrate of.
Blisters.	Iodine.	Poultices.
Bloodletting.	Jaborandi.	Squill.
Burgundy pitch.	Leeches.	Tartar emetic.
Cod-liver oil.	Liquor potassæ.	Veratrum viride.
Counter-irritants.	Mercury.	
Cups.	Morphia.	

**Pleurodynia—**

Actæa racemosa.	Chloral.	Liniments.
Ammonia. [warm].	Cinchona.	Mustard.
Baths (Turkish and Belladonna.	Croton oil.	Opium.
Blisters.	Ether.	Poultices.
	Iodine.	Revellents.

**Pneumonia.**

Aconite.  
 Alcohol. [ate of.  
 Ammonium, carbon-  
 Belladonna.  
 Benzoic acid.  
 Blisters.  
 Brandy.  
 Camphor.  
 Chloroform.  
 Cinchona.

Cold.  
 Cups.  
 Digitalis.  
 Ipecacuanha.  
 Leeches.  
 Mercury.  
 Morphia.  
 Musk.  
 Oil of turpentine.  
 Opium.

Phosphorus.  
 Potassium, nitrate of.  
 Poultrices.  
 Quinia.  
 Senega.  
 Serpentaria.  
 Tartar emetic.  
 Veratrum viride.  
 Veratria.  
 Wine.

**Priapism —**

Belladonna.  
 Bromides.  
 Camphor.

Chloroform.  
 Hops.  
 Ice-bag, spinal.

Lupulin.  
 Suppositories.  
 Veratrum.

**Prolapsus —**

Alum.  
 Catechu.  
 Hæmatoxylon.

Ice.  
 Kino.  
 Krameria.

Strychnia.  
 Sulphur.  
 Tannic acid.

**Prostatitis —**

Cantharides.

Hot injections.

**Prurigo —**

Aconitia.  
 Arsenic.  
 Baths (alkaline, warm,  
 creasote, sulphur,  
 and Turkish).  
 Belladonna.  
 Borax.  
 Calcium, sulphide of.  
 Cantharides.  
 Carbolic acid.  
 Chloroform.

Cod-liver oil.  
 Corrosive sublimate.  
 Creasote.  
 Hydrocyanic acid.  
 Ice.  
 Iodoform.  
 Iron.  
 Laxatives.  
 Lime-water.  
 Oil of cade.

Opium.  
 Potassium, cyanide of.  
 Strychnia.  
 Sulphur.  
 Sulphuric acid.  
 Tar.  
 Tobacco.  
 Tonics.  
 Vinegar.  
 (See Pruritus.)

**Pruritus —**

Acetic acid.  
 Alcohol.  
 Alkalies.  
 Alum.  
 Aluminium, nitrate  
 Arsenic. [of.  
 Atropia.  
 Baths (alkaline, med-  
 icated, vapor, and  
 warm).  
 Belladonna.  
 Benzoin.  
 Bismuth and mor-  
 phia.  
 Boracic acid.  
 Borax.  
 Calomel.

Camphor.  
 Carbolic acid.  
 Chloral.  
 Chloroform.  
 Chromic acid.  
 Cider.  
 Cod-liver oil.  
 Corrosive sublimate.  
 Douches.  
 Electricity.  
 Glycerine.  
 Hot water injections.  
 Hydrocyanic acid.  
 Iodoform.  
 Iron.  
 Laxatives.  
 Lead, iodide of.

Lead lotions.  
 Mercury, nitrate of.  
 Morphia.  
 Potassium, carbonate,  
 cyanide, and sul-  
 phide of.  
 Quinia.  
 Silver, nitrate of.  
 Sodium, carbonate  
 and sulphites.  
 Sponging.  
 Sulphur.  
 Tannic acid.  
 Tar.  
 Tobacco.  
 Vinegar. [of.  
 Zinc, sulphocarbonate

**Pruritus Vulvæ.** See Pruritus.**Psoriasis—**

Alkalies.	Corrosive sublimate.	Oils.
Arsenic.	Creasote.	Petroleum.
Bath (alkaline, Turkish, and warm).	Fats.	Phosphorus.
Calcium, sulphuret	Glycerine.	Potassium, iodide of.
Calomel. [of.	Green soap.	Purgatives, saline.
Cantharides.	Hypophosphites.	Quinia.
Carbolic acid.	Iodine.	Silver, nitrate of.
Cod-liver oil.	Iron.	Soap.
Colchicum.	Mercurial vapor bath.	Sulphides.
Copaiba.	Mercury, ammoniated, iodide and nitrate of.	Sulphur.
Copper, sulphate of.		Sulphur, iodide of.
		Tar.

**Ptyalism.** See Salivation.**Puerperal Fever—**

Chloral.	Iron.	Potassium, bromide
Cinchona.	Morphia.	Poultices. [of.
Enemata. [tive.	Oil of turpentine.	Quinia.
Fomentations, sedative.	Opium.	Tartar emetic.

**Puerperal Mania—**

Aconite.	Chloroform.	Opium.
Ammonia.	Cinchona.	Phosphoric acid.
Bloodletting.	Cod-liver oil.	Quinia.
Brandy.	Hyoscyamus.	Stramonium.
Camphor.	Indian hemp.	Veratrum viride.
Chloral.	Morphia.	Wine.

**Purpura—**

Acids (mineral and vegetable).	Gallic acid.	Purgatives.
Arsenic.	Iron.	Quinia.
Ergot.	Oil of turpentine.	Sulphuric acid.

**Pyæmia—**

Alcohol.	Hyposulphites.	Opium.
Ammonia.	Iron, tincture of chloride of.	Quinia.
Bismuth, subnitrate	Lead, acetate of.	Salicylic acid.
Carbolic acid. [of.	Muriatic acid.	Stimulants.
Cinchona.	Nitric acid.	Sulphites.
Ether.		Sulphurous acid.

**Pyelitis—**

Alkalies.	Copaiba.	Oil of turpentine.
Bath, warm.	Cups.	Opium.
Blisters.	Juniper.	Uva ursi.
Buchu.	Leeches.	(See Nephritis.)
Cold.	Morphia.	

**Pyrosis—**

Bismuth.	Manganese.	Sodium, sulphite of.
Gallic acid.	Silver, nitrate and oxide of.	
Kino.		

**Remittent Fever—**

Acids.	Iodine.	Nitric acid.
Arsenic.	Ipecacuanha.	Opium.
Cinchona.	Laxatives.	Quinia.
Cinchonia.	Mercury.	Serpentaria.
Cold drinks.	Morphia.	Sponging, tepid.

**Retention of Urine—**

Cantharides.	Indian hemp.	Stramonium.
Ergot.	Nux vomica.	Strychnia.

**Rheumatism, Acute—**

Aconite.	Electricity.	Salicin.
Actæa racemosa.	Iodine.	Salicylate of sodium.
Ammonium, bromide	Iron, chloride of.	Salicylic acid.
and citrate of.	Jaborandi.	Saline purgatives
Arsenic.	Lemon-juice.	Sassafras.
Baths (hot air, vapor,	Lime-juice.	Sodium, bicarbonate
and Turkish).	Morphia.	and nitrate of.
Belladonna.	Opium.	Sponging, cold.
Blisters.	Potassium, bicarbon-	Sulphurous acid.
Carbolic acid.	ate, citrate, cyanide,	Veratria.
Cimicifuga.	iodide, and nitrate	Veratrum album.
Colchicum.	of.	Wadding.
Cold water.	Poultices.	Wet packing.
Conium.	Propylamin.	Zinc, cyanide of.
Dover's powder.	Quinia.	

**Rheumatism, Chronic—**

Actæa racemosa.	Chloral.	Mercurial ointment.
Alcohol.	Chloroform.	Oil of cajuput.
Ammonium, carbon-	Cinchona.	Oleate of mercury and
ate and phosphate	Cod-liver oil.	morphia.
Arsenic. [of.	Colchicum.	Opium.
Atropia.	Cold douche.	Potassium, acetate,
Bath (Turkish, warm,	Corrosive sublimate.	bicarbonate, iodide,
etc.).	Electricity.	and nitrate of.
Belladonna.	Galvanism.	Poultices.
Blisters.	Guaiaac.	Quinia.
Burgundy pitch plas-	Ice.	Salicylic acid.
Camphor. [ter.	Iodine.	Serpentaria.
Capsicum.	Iodoform.	Sulphides.
Carbolic acid.	Liniments, stimulat-	Sulphur.
Carbonic acid.	Magnesia. [ing.	Veratria.

**Rheumatism, Muscular—**

Aconite.	Cups.	(See Rheumatism,
Alcohol.	Dover's powder.	Chronic, and Myal-
Baths.	Electricity.	gia).

**Rickets—**

Baths (astringent,	Cod-liver oil.	Quinia
chalybeate, sea-	Iron.	Sponging, cold, or
water, etc.).	Lime-water.	salt.
Calcium, carbonate	Phosphates.	Tannic acid.
and phosphate of.	Phosphorus.	

**Salivation—**

Acids.	Laxatives.	Rhatory.
Alcohol.	Lead, acetate of.	Sage.
Alum.	Lime, chlorinated.	Silver, nitrate of.
Atropia.	Nitric acid.	Tartar emetic.
Belladonna.	Oak bark.	Tea.
Borax.	Opium.	Zinc, sulphate of.
Chlorinated solutions.	Potassium, chlorate,	
Iodine.	iodide, and perman-	
	ganate of.	

**Scabies—**

Alkalies.	Lime, chlorinated.	Sulphur.
Balsam of Peru.	Petroleum.	Sulphur baths.
Baths.	Potassium, carbonate	Sulphurous acid.
Chalk.	and iodide of.	Tar.
Glycerine.	Storax.	Veratrum album.
Green soap.		

**Scarlet Fever—**

Aconite.	Cold applications.	Oils.
Ammonium, carbon-	Colehicum.	Potassium, chlorate
Almond oil. [ate of.	Fat.	and citrate of.
Belladonna.	Ice.	Quinia.
Cocoa butter.	Iron.	Salicylic acid.
Capsicum.	Juniper.	Silver, nitrate of.
Carbolic acid.	Lard.	Sponging.
Chloral.	Magnesium, sulphate [of.	Strychnia. [dium.
Chlorine water.	Mercury with chalk.	Sulphocarbonate of so-
Cinchona.	Mustard.	Sulphurous acid.
Cold affusion.	Nitric acid.	Veratrum viride.

**Scotatica—**

Aconite.	Canterization.	Iodine.
Acupuncturation.	Chloroform.	Morphia.
Actæa racemosa.	Cod-liver oil.	Oil of turpentine.
Ammonium, chloride	Conium.	Potassium, iodide of.
of.	Counter-irritation.	Poultices.
Atropia.	Creasote.	Salicylate of sodium.
Baths (Turkish and	Croton oil.	Sulphur.
warm.)	Cups.	Veratria.
Belladonna.	Electricity.	Veratrum viride.
Blisters.	Ether.	Zinc, cyanide of.
Burgundy pitch.	Galvanism.	(See Neuralgia.)

**Scrofula—**

Alcohol.	Conium.	Nitric acid.
Calcium, chloride,	Glycerine.	Phosphates.
iodide, phosphate,	Hypophosphites.	Phosphoric acid.
and sulphide of.	Iodine.	Sarsaparilla.
Cinchona.	Iron.	Sodium, carbonate of.
Cod-liver oil.	Mercury.	Sulphides.

**Scurvy—**

Acids.	Diet.	Potassium, chlorate
Alcohol.	Gallic acid.	and bitartrate of.
Atropia.	Iron alum.	Rhatany.
Catechu.	Iron, chloride of.	Tannic acid.
Cinchona.	Lemon-juice.	Vinegar.

**Sea-sickness—**

Amyl, nitrite of.	Chloroform.	Ice-bag, spinal.
Brandy.	Creasote.	(See Vomiting.)
Chloral.		

**Seborrhœa—**

Alcohol.	Cod-liver oil.	Iron.
Arsenic.	Corrosive sublimate.	Mercurial ointment.
Cantharides.	Glycerine.	Oils.
Carbolic acid.	Green soap.	Tar.

**Septicæmia. See Pyæmia.****Sick Headache—**

Aconite.	Croton chloral.	Nux vomica.
Ammonium, chloride	Friedrichshall water.	Phosphorus.
and valerianate of.	Galvanism.	Podophyllum.
Amyl, nitrite of.	Guarana.	Potassium, bromide
Antacids.	Indian hemp.	Veratria. [of.
Chamomile.	Magnesia.	Zinc, valerianate of.
Counter-irritation.	Mercurial pill.	(See Headache.)

**Singultus—**

Bromides.	Chloral.
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**Sleeplessness. See Insomnia.****Smallpox—**

Actæa racemosa.	Collodion.	Opium.
Carbolic acid.	Gutta percha.	Quinia.
Chloral (bath and	Iodine.	Silver, nitrate of.
wash).	Laxatives.	Soda, chlorinated.
Chlorine.	Lime liniment.	Sponging.
Cinchona.	Mercurial ointment	Sulphurous acid.
Cold water.	and plaster.	Tannic acid.

**Sore Mouth, Mercurial—**

Belladonna.	Opium.	Purgatives.
Copper, sulphate of.	Potassium, chlorate	Tannic acid.
Oil of turpentine.	of.	

**Sore Nipples. See Nipples.****Sores—**

Alcohol.	Cinchona.	Starch.
Alum.	Copper, sulphate of.	Starch, iodide of.
Calcium, carbonate	Iodoform.	Tannic acid.
and sulphide of.	Lead, acetate of.	Yeast.
Camphor.	Lime-water.	Zinc, oxide and sul-
Carbolic acid.	Morphia.	phate of.
Charcoal.	Nitric acid.	(See Ulcers.)
Chlorine.	Opium.	



**Sore Throat.** See Laryngitis, Pharyngitis, etc.**Spasm—**

Amyl, nitrite of.	Conium.	Opium.
Belladonna.	Electricity.	Tobacco.
Camphor.	Iodine.	(See Convulsions.)
Chloral.	Musk.	

**Spermatorrhœa—**

Acetic acid.	Cold douche.	Phosphorus.
Aperients.	Conium.	Quinia.
Baths, chalybeate.	Copaiba.	Salt water sponge bath.
Belladonna.	Digitalis.	Silver, nitrate of.
Bromides.	Electricity.	Sodium, hypophosphite of.
Calcium, hypophosphite of.	Ergot.	Sponging, cold.
Camphor.	Ice-bag, spinal.	Strychnia.
Cantharides.	Iron.	Tobacco.
Chloral.	Lupulin.	
Cinchona.	Nux vomica.	
	Oil of turpentine.	

**Spinal Irritation—**

Aconite.	Cod-liver oil.	Iron.
Belladonna.	Electricity.	Quinia.

**Spleen, Enlarged—**

Bromides.	Iron.	Potassium, bromide
Cinchona.	Lead.	Purgatives. [of.
Cold douche.	Mercury.	Quinia.
Ergot.		

**Sprain—**

Camphor.	Compression.	(See Contusions.)
Cold douche.	Olive oil.	

**Stomach, Acute Inflammation of—**

Enemata.	Ice.	Silver, nitrate of.
Fomentations.	Opium.	

**Stomach, Chronic Inflammation of.** See Dyspepsia, etc.**Stomatitis—**

Acids.	Creasote.	Potassium, chlorate and permanganate
Alum.	Glycerite of tannic acid.	Salicylic acid. [of.
Carbolic acid.	Iodine.	Silver, nitrate of.
Cinchona.	Muriatic acid.	Soda, chlorinated.
Copper, sulphate of	Nitric acid.	Sodium, carbonate of.
Corrosive sublimate.		Zinc, chloride of.

**Strangury—**

Camphor.	Indian hemp.	Spirit of nitrons ether.
Citrates.	Opium.	Uva ursi.
Cotton.	Parsley.	
Erigeron.	Potassa, solution of.	

**Sunstroke—**

Ammonia.	Enemata, stimulant.	Opium.
Atropia.	Friction with ice.	Quinia.
Brandy.	Iced water.	Tea.
Cinchona.	Mustard.	Whiskey.
Cold affusion.		

**Sweating, Excessive.** See Perspiration.**Sycosis—**

Acetic acid.	Green soap.	Sodium, sulphite of.
Arsenic.	Iron.	Sulphur.
Carbolic acid.	Mercury, nitrate of.	Sulphur, iodide of.
Cod-liver oil.	Oil.	Sulphurous acid.
Corrosive sublimate.	Oleate of mercury.	Tar.
Creasote.	Poultices.	White precipitate.
Epilation.	Scarification.	

**Syncope—**

Ammonia.	Digitalis.	Mustard.
Brandy.	Ether.	Wine.

**Synovitis—**

Blisters.	Iodine.	Oleate of mercury and
Carbolic acid.		morphia.

**Syphilis—**

Alkalies.	Guaia.	Oleate of mercury.
Baths (vapor, warm, Turkish).	Hypodermic injections of mercury.	Opium.
Calomel.	Inunction.	Potassium, chlorate and iodide of.
Carbolic acid.	Iron, iodide of.	Salicylic acid.
Carbon, bisulphide of.	Mercurial fumigations.	Sarsaparilla.
Cauterization.	Mercury.	Silver, nitrate of.
Chlorine.	Mezereon.	Sodium, iodide of.
Chromic acid.	Muriatic acid.	Sulphuric acid.
Cod-liver oil.	Nitric acid.	Sulphurous acid.
Copper, sulphate of.	Nitro-muriatic acid.	Zinc, chloride, iodide, and nitrate of.
Corrosive sublimate.		

**Tabes Mesenterica—**

Cinchona.	Hypophosphites.	Potassium, iodide of.
Cod-liver oil.	Iron, ammonio-citrate of.	Poultices.
Frictions.		Sea air.

**Tænia—**

Aloes.	Iron.	Pomegranate.
Brayera.	Kameela.	Purgatives.
Calomel.	Kouso.	Quassia.
Castor oil.	Mineral acids.	Santonin.
Chenopodium.	Mucuna.	Spigelia.
Croton oil.	Oil of turpentine.	Sulphuric acid.
Enemata.	Olive oil.	Tansy.
Ether.	Pepo.	Tin.
Filix mas.	Picric acid.	(See Worms.)

**Testicle, Swelled—**

Chloroform.	Copaiba.	Strapping.
Collodion.		

**Tetanus—**

Aconite.	Cinchona.	Nux vomica.
Alcohol.	Conia.	Oxygen.
Amyl, nitrite of.	Curare.	Physostigma.
Atropia.	Electricity.	Potassium, bromide of.
Baths (warm, vapor, etc.).	Ether.	Purgatives.
Belladonna.	Hemp.	Quinia.
Calabar bean.	Ice-bag, spinal.	Sodium, sulphite of.
Cannabis.	Jaborandi.	Stimulants.
Cantharides.	Magnesium, sulphite of.	Tartar emetic.
Chloral.	Morphia.	Tobacco.
Chloroform.	Nicotia.	Wines.

**Thrush—**

Borax.	Copper, sulphate of.	Sodium, sulphite of.
Catechu.	Glycerine.	Sulphurous acid.

**Tic Douleureux.** See Neuralgia.**Tinea Favosa—**

Corrosive sublimate.	Mercury, yellow sulphate of.	Sulphur.
Cod-liver oil.	Oils.	Sulphurous acid.
Epilation.	Sodium, sulphite of.	Tar.
		(See Aphthæ.)

**Tinea Sycosis.** See Tinea favosa.**Tinea Tonsurans—**

Iodine.	Potassium, sulphide and sulphocyanide of.	Sulphur.
Mercury.	Silver, nitrate of.	Sulphurous acid.
Oils.	Sodium, sulphite of.	Tar.
		(See Sycosis.)

**Tinea Versicolor—**

Arsenic.	Corrosive sublimate.	Sodium, carbonate and sulphite of.
Calcium, sulphide of.	Iron.	Soft soap.

**Tonsillitis—**

Alum.	Cold.	Poultices.
Ammonia, solution of.	Fomentations.	Purgatives.
Belladonna.	Inhalations, atomized.	Quinia.
Capsicum.	Lead.	Silver, nitrate of.
Chloral.	Opium.	Tartar emetic.
Cinchona.		(See Pharyngitis.)

**Toothache—**

Aconite.	Caraway.	Creasote.
Alum.	Cloves.	Oil of cajeput.
Blisters.	Conium.	Opium.
Camphor.		

**Trichiniasis—**

Benzole.

Iron.

Picric acid.

Purgatives.

Quinia.

Sodium, sulphocarbo-

late of.

Stimulants.

**Trismus Nascentium.** See Tetanus.**Tuberculosis.** See Phthisis, etc.**Tympanitis—**

Assafoetida.

Bismuth.

Oil of turpentine.

Opium.

**Typhoid Fever—**

Alcohol.

Alum.

Ammonium, acetate  
of.

Bath, warm.

Belladonna.

Bismuth.

Blisters.

Brandy.

Calomel.

Cinchona.

Cold affusion.

Copper, sulphate of.

Corrosive sublimate.

Digitalis.

Enemata.

Ergot.

Fomentations.

Ioe.

Iodine.

Ipecacuanha.

Lead, acetate of.

Mercury.

Muriatic acid.

Oil of turpentine.

Opium.

Poultices.

Quinia.

Salicin.

Salicylic acid.

Serpentaria.

Silver, nitrate of.

Soda, chlorinated.

Sodium, salicylate

and sulphite of.

Sponging.

Sulphurous acid.

Veratrum viride.

Wine.

Zinc, phosphide and

sulphate of.

(See Fever.)

**Typhus Fever—**

Alcohol.

Bath, warm.

Belladonna.

Brandy.

Camphor.

Carbolic acid.

Chloral.

Chlorine water.

Cinchona.

Cold affusion.

Digitalis.

Hyoscyamus.

Ipecacuanha.

Muriatic acid.

Mustard.

Nitric acid.

Opium.

Phosphoric acid.

Quinia.

Sodium, sulphite of.

Sponging.

Sulphuric acid.

Wine.

(See Fever.)

**Ulcers—**

Alcohol.

Alum.

Bismuth.

Camphor.

Carbolic acid.

Carbon, sulphide of.

Chalk.

Charcoal.

Chloral.

Cinchona.

Collodion.

Conium.

Copaiba.

Copper, sulphate of.

Creasote.

Glycerine.

Iodoform.

Iron.

Lead.

Lime, chlorinated.

Lime-water.

Mercury.

Nitric acid.

Opium.

Potassium, chlorate  
and permanganate

of.

Salicylic acid.

Silver, nitrate of.

Soda, chlorinated.

Sugar.

Sulphuric acid.

Tar.

Zinc, chloride, oxide,

and sulphate of.

**Uræmia—**

Arenic.

Baths, hot air.

Benzoic acid.

Chloral.

Cl loroform.

Colchioun.

**Uræmia—continued.**

Digitalis.	Iron and quinia, citrate of.	Purgatives.
Elaterium.		Sodium, phosphate of.
Ememata, antispasmodic.	Non-nitrogenous diet.	Sponging, tepid.
Iron.	Opium.	
	Potassium, acetate of.	

**Urethritis—**

Belladonna.	Fomentations.	Silver, nitrate of.
Copaiba.	Hip-bath, hot.	(See Gonorrhœa.)
Demulcents.	Opium.	

**Uric Acid Diathesis—**

Ammonium, phosphate of.	Diluents.	Potassa, solution of.
Benzoic acid.	Laxatives.	Potassium, salts of.
Benzoin.	Lithium, benzoate of.	Vegetable diet.

**Urticaria—**

Acouite.	Chloroform.	Iron.
Alkalies.	Cod-liver oil.	Lead lotions.
Arsenic.	Colchicum.	Nitric acid.
Baths (tepid, Turkish, etc.).	Corrosive subl. mate.	Potassium, cyanide of.
Benzoin.	Creasote.	Purgatives, saline.
Bismuth.	Emetics.	Quinia.
	Ipecacuanha.	Vinegar.

**Uterus, Fibroid Tumors of—**  
Ergot.**Uterus, Inertia of—**

Belladonna.	Electricity.	Oil of turpentine.
Borax.	Ergot.	Uva ursi.
Cotton.	Hemp.	

**Uterus, Inflammation of.** See Metritis.**Uterus, Rigidity of—**

Belladonna.	Chloroform.	Tartar emetic.
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**Vaginismus—**

Iodoform.	Silver, nitrate of.	
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**Vaginitis—**

Alum.	Injections.	Vaginal suppositories
Fomentations. [acid.	Poultices.	(acetate of lead,
Glycerite of tannic	Purgatives.	belladonna, opium,
Hip-baths, hot.	Silver, nitrate of.	oxide of zinc, etc.).

**Vomiting—**

Acids.	Calomel.	Creasote.
Alum.	Carbolic acid.	Gelatin.
Arsenic.	Carbonic acid water.	Hydrocyanic acid.
Belladonna.	Cerium, oxalate of.	Ice.
Bismuth.	Chloroform.	Ice-bag.
Blisters.	Counter-irritation.	Ipecacuanha.

**Vomiting—continued.**

Lime-water.	Nux vomica.	Quinia, bromhydrate
Magnesia.	Opium.	of. [of.
Mercury with chalk.	Potassium, bromide	Sodium, bicarbonate
Morphia.	Quinia. [of.	Veratrum album.

**Vomiting of Pregnancy—**

Aconite.	Carbonic acid water.	Muriatic acid.
Alcohol.	Cardamom.	Nitric acid.
Atropia.	Cerium, oxalate of.	Nitromuriatic acid.
Belladonna.	Chloral.	Nux vomica.
Bismuth.	Dilatation of cervix.	Pessary.
Blisters.	Electricity.	Phosphoric acid. [of.
Brandy.	Geutian.	Potassium, bromide
Calcium, acid syrup of	Hyoscyamus.	Pyroxylic spirit.
hypophosphite of.	Iodine.	Silver, nitrate of.
Calcium, hydrated	Ipecacuanha.	Suppositories, vaginal.
phosphate of.	Morphia.	(See Vomiting.)

**Vulvitis—**

Alum.	Glycerine. [acid.	Lead, acetate, iodide,
Aperients.	Glycerite of tannic	and subacetate of.
Atropia.	Hip bath, warm.	Lime-water.
Belladonna.	Hydrocyanic acid.	Morphia.

**Warts—**

Acetic acid.	Chromic acid.	Sanguinaria.
Ammonium, chloride	Creasote.	Savine.
of.	Iodine.	Silver, nitrate of.
Arsenic.	Mercury, nitrate of.	Zinc, chloride, iodide,
Caustic alkalies.	Muriatic acid.	and nitrate of.
Chloral.	Nitric acid.	

**Whooping-cough—**

Aconite.	Croton chloral.	Mustard.
Alum.	Dracontium.	Nitric acid.
Ammonium, bromide,	Dulcamara.	Oil of turpentine.
carbonate, and	Emetics.	Opium.
chloride of.	Ergot.	Potassium, bromide
Arsenic.	Ether.	and carbonate of.
Assafoetida.	Encalyptus.	Quinia.
Belladonna.	Expectorants, seda-	Senega.
Bromides.	tive.	Silver, iodide and ni-
Camphor.	Hydrocyanic acid.	trate of.
Carbolic acid.	Indian hemp.	Sponging, salt.
Castanea.	Ipecacuanha.	Squill.
Chloral.	Iron.	Stramonium.
Chlorine.	Lead.	Tannic acid.
Chloroform.	Lime-water.	Tartar emetic.
Cinchona.	Lobelia.	Valerian.
Cod-liver oil.	Morphia.	Zinc, oxide, sulphate,
Conium.	Musk.	and valerianate of.

**Worms—**

Absinthium.	Gamboge.	Quinia.
Alum. [of.	Iron, tincture of chlo-	Santonin.
Ammonium, chloride	ride of.	Savine.
Assafoetida.	Jalap.	Scammony.
Camphor.	Kameela.	Sodium, chloride of.
Castor oil.	Kousso.	Spigelia.
Cheupodium.	Lime-water.	Tannic acid.
Cinchona.	Mercury.	Tansy.
Cod-liver oil.	Muriatic acid.	Tin.
Cold water.	Mucuna.	Tobacco.
Colocynth.	Nux vomica.	Tonics.
Creasote.	Oil of turpentine.	Valerian.
Enemata.	Pomegranate.	(See Tænia, Ascari-
Ether.	Pumpkin seeds.	des, etc.)
Filix mas.	Quassia.	

**Wounds—**

Alcohol.	Carbolic acid.	Petroleum.
Ammonium, chloride	Chloral.	Salicylic acid.
of.	Cold.	Silver, nitrate of.
Balsam of Peru.	Collodion.	Sulphurous acid.
Bath, Turkish.	Glycerine.	Tannic acid.
Boracic acid.	Opium.	

**Yellow Fever—**

Acids, mineral.	Cold.	Mustard.
Bath, warm.	Lead.	Oil of turpentine.
Chloroform.	Mercury.	Purgatives.
Cinchona.	Morphia.	Quinia.

## SELECTED PRESCRIPTIONS FROM PRACTITIONERS' CASE-BOOKS.

In illustration of the general principles already laid down as to the doses of medicines, and in continuation of the subject of the applicability of remedial agents to a multitude of morbid conditions, the following prescriptions, culled from an immense mass of such material kindly placed at the disposal of the author, will doubtless prove of practical service. Being the fresh and very recent formulæ employed by leading medical men in active professional practice, whose daily experience is but a reflexion and counterpart of that of every other busy practitioner in all portions of the country, such prescriptions offer at once desirable methods of combining reliable medicines and indicate some of the applications of the more modern remedies. They may also, in some instances, by suggesting new trains of thought, aid to lift the mere routinist above the level of a blind adherence to fixed modes of prescribing and dispensing medicines. It is desirable, indeed, that even with the formulæ now offered, the practitioner should intelligently appreciate the motives for making such combinations of various agents in the same prescription, and under no other circumstances adopt any of them in his own practice. No attempt has been made to give anything like completeness to this merely illustrative collection of scattered formulæ.



**Alopecia.**

1.

- R. Olei ricini, f3vj;  
 Aquæ ammoniæ, f3j;  
 Tincturæ cantharidis, f3ss;  
 Aquæ Coloniensis, f3ij;  
 Aquam ad f3v. M.  
 S. Apply as a wash.

2.

- R. Tincturæ cantharidis, f3ij-iv;  
 Spiritus ammoniæ aromatici,  
 f3xv;  
 Glycerinæ, f3j;  
 Aquæ rosmarini destillatæ,  
 f3xx. M.  
 S. Apply as a wash.

**Anæmia, Chlorosis, etc.**

3.

- R. Ferri et ammonii citratis, gr.  
 xxx;  
 Tincturæ calumbæ,  
 " nucis vomicæ, aa gtt.  
 xxx;  
 Sacchari albi, 3ijj;  
 Aquæ, f3iij. M.

S. A teaspoonful three times a day.  
 (Tonic for a child 1 to 2 years of age.)

4.

- R. Ferri pyrophosphatis,  
 Quinæ sulphatis, aa 3j;  
 Strychniæ, gr. j;  
 Acidi phosphorici diluti, f3ij;  
 Syrupi zingiberis, q. s.;  
 Aquam ad f3iv. M.  
 S. A teaspoonful three times daily.

5.

- R. Hydrargyri chloridi corrosivi,  
 gr. j;  
 Liquoris arsenici chloridi, f3ss;  
 Tincturæ ferri chloridi,  
 Acidi hydrochlorici diluti,  
 aa f3ij;  
 Syrupi zingiberis, f3iiss;  
 Aquam ad f3vj. M.  
 S. A tablespoonful in water, after each meal.

6.

- R. Ferri pulveris,  
 Quinæ sulphatis, aa gr. xxv;  
 Acidi arseniosi, gr. j. M.  
 Divid. in pilulas xxv.  
 S. One three times a day.

7.

- R. Strychniæ sulphatis, gr. ss-j;  
 Tincturæ ferri chloridi, f3iij;  
 Acidi acetici diluti, f3iv;  
 Liquoris ammonii acetatis,  
 f3iiss;  
 Syrupi,  
 Curaçoa, aa f3j;  
 Aquam ad f3x. M.  
 S. A tablespoonful, in water, three times a day.

8.

- R. Quinæ sulphatis, 3j;  
 Ferri sulphatis, gr. xlv;  
 Strychniæ, gr. j;  
 Acidi arseniosi, gr. iss. M.  
 Divid. in pilulas xxx.  
 S. One before each meal.

9.

- R. Ferri carbonatis, 3j;  
 Quinæ sulphatis, gr. xxx;  
 Strychniæ, gr. ss. M.  
 Divid. in pilulas xxx.  
 S. One three times daily.

10.

R. Tincturæ cinchonæ compositæ, f℥iiss;  
 " nucis vomicæ, f℥iiss;  
 Curaçoa, f℥ij;  
 Acidi phosphorici diluti, f℥iij.  
 M.  
 S. A dessertspoonful, in solution, after each meal.

**Asthma.**

11.

R. Ætheris, f℥iiss;  
 Tincturæ lobeliæ, f℥j;  
 " opii,  
 " stramonii, aa f℥ss.  
 M.  
 S. A teaspoonful every hour or two until nausea results.

12.

R. Potassii iodidi, gr. xxx;  
 Spiritus ammoniæ aromatici, f℥v;  
 Tincturæ belladonnæ, f℥j;  
 " cinchonæ compositæ, f℥j;  
 Aquam menthæ piperitæ ad f℥xiij. M.  
 S. A wineglassful three times a day.

**Bronchitis.**

13.

R. Spiritus chloroformi, f℥ss;  
 Acidi hydrobromici, f℥vj;  
 Syrupi scillæ, f℥iiss;  
 Aquam ad f℥vj. M.  
 S. A tablespoonful as directed. (A sedative cough-mixture.)

14.

R. Morphis sulphatis, gr. ij-ijj;  
 Acidi sulphurici, gr. ij-ijj.  
 M. et adde—  
 Tincturæ serpentariæ, f℥j;  
 Vini antimonii,  
 " ipecacuanhæ, aa f℥ij;  
 Tincturæ anisi, f℥j;  
 Syrupi pruni Virginianæ, f℥iv. M.  
 S. A teaspoonful *pro re nata*.

15.

R. Morphis acetatis, gr. iij;  
 Tincturæ sanguinariæ, f℥ij;  
 Vini ipecacuanhæ,  
 Extracti pruni Virginianæ fluidi, aa f℥ss;  
 Syrupi senegæ,  
 " tolutani, aa f℥iiss. M.  
 S. A tablespoonful every four hours.

16.

R. Potassii chloratis, gr. xl;  
 Acidi sulphurici aromatici, ℥xxx;  
 Syrupi scillæ,  
 " pruni Virginianæ, aa f℥ss;  
 Aquæ, f℥iiss. M.  
 S. A teaspoonful every two or three hours.

17.

R. Antimonii et potassii tartratis, gr. ss;  
 Acaciæ pulveris, ℥ij;  
 Liquoris morphis sulphatis, Syrupi senegæ,  
 " aurantii corticis, aa f℥ss;  
 Aquæ, f℥iv. M.  
 S. A tablespoonful three or four times daily.

18.

- R. Tincturæ lobeliæ, fʒss;  
 " opii camphoratæ,  
 fʒvj;  
 Syrupi scillæ, fʒiss;  
 " ipecacuanhæ, fʒij;  
 Acaciæ, ʒj. M.  
 S. A teaspoonful every three or  
 four hours.

19.

- R. Morphine acetatis, gr. viij;  
 Potassii cyanidi, gr. ʒ;  
 Extracti pumi Virginianæ,  
 fʒvj;  
 Syrupi tolutani, fʒij. M.  
 S. A teaspoonful when cough is  
 troublesome.  
 (An excellent sedative mixture.)

20.

- R. Ammonii chloridi, ʒij;  
 Extracti glycyrrhizæ, ʒj;  
 Aceti opii, fʒj;  
 Syrupi aurantii, fʒij;  
 Aquæ destillatæ, fʒiv. M.  
 S. A tablespoonful three or four  
 times a day.

**Burns.**

21.

- R. Iodoformi, ʒij;  
 Unguenti cetacei, ʒj;  
 Extracti conii, ʒiss;  
 Acidi carbolici, ℥x. M.  
 S. Apply to the affected surface.

22.

- R. Liquoris calcis,  
 Glycerinæ, aa fʒj;  
 Olei amygdalæ, fʒij. M.  
 S. Apply locally.

**Chaps.**

23.

- R. Zinci oxidi, gr. xl;  
 Acidi tannici, gr. xxx;  
 Glycerinæ, fʒij;  
 Tincturæ benzoini, fʒj;  
 Camphoræ, gr. xxx. M.  
 S. Apply to the affected part.

**Chilblains.**

24.

- R. Acidi carbolici, gr. iv;  
 Glycerinæ, fʒiss;  
 Alcoholis (86°), q. s. ad fʒvj.  
 M.  
 S. Apply locally.

25.

- R. Cerati simpliciis,  
 Olei olivæ, aa fʒij;  
 Glycerinæ, fʒij;  
 Spiritus camphoræ, fʒj. M.  
 S. Apply locally.

**Cholera Infantum.**

26.

- R. Acidi sulphurici aromatici,  
 ℥x;  
 Extracti hæmatoxyli, gr. xv;  
 Curaçoa, fʒj;  
 Syrupi, fʒxj. M.  
 S. A teaspoonful every one, two,  
 or three hours, for a child two  
 years old.

(See Diarrhœa, etc.)

**Cholera Morbus.**

27.

R. Chloroformi,  
Tincturæ opii,  
" camphoræ,  
Spiritus ammoniæ aromatici,  
aa f3ij;  
Olei cinnamomi, m̄j;  
Spiritus vini Gallici, f3iiss. M.  
S. Half a teaspoonful as re-  
quired.

(See Diarrhœa, etc.)

**Cold in the Head.**

28.

R. Morphine muriatis, gr. ij;  
Acaciæ pulveris, 3ij;  
Bismuthi subnitratæ, 3vj. M.  
S. Use this amount as a snuff in  
from two to four days.

**Colic, Cramps, etc.**

29.

R. Chloroformi,  
Tincturæ opii,  
" camphoræ,  
Spiritus ammoniæ aromatici,  
aa f3iij;  
Olei cinnamomi, m̄iij;  
Spiritus vini Gallici, f3iiss. M.  
S. Half a teaspoonful or more  
as required.

30.

R. Morphine sulphatis, gr. j;  
Chloroformi, f3ij;  
Syrupi zingiberis, f3ij. M.  
S. A teaspoonful every five min-  
utes until relieved.

31.

R. Aquæ camphoræ, f3j;  
Spiritus ætheris compositi,  
f3ij;  
Tincturæ cardamomi compo-  
sitæ, f3ss;  
Spiritus anisi, f3vj;  
Olei carni, m̄xij;  
Syrupi zingiberis, f3ij;  
Aquæ menthæ piperitæ, f3vss.  
M.  
S. Half a wineglassful *pro re-  
natâ*.

32.

R. Spiritus ætheris,  
" chloroformi, aa f3iij;  
Tincturæ cardamomi compo-  
sitæ, f3vj;  
Spiritus myristicæ, f3ij;  
Olei carui, m̄xij;  
Mucilaginis tragacanthæ, f3iij;  
Aquam menthæ piperitæ ad  
f3viij. M.  
S. Half a wineglassful as re-  
quired.

**Constipation.**

33.

R. Sodii et potassii tartratis,  
3iiss;  
Sacchari albi, 3v;  
Sodii bicarbonatis,  
Acidi tartarici, aa 3j,  
Olei limonis, q. s. M.  
S. A teaspoonful in sweetened  
water.

34.

R. Resinæ podophylli, gr. ij;  
Extracti hyoscyami,  
Saponis Castiliensis, aa gr. viij.  
M.  
Divid. in pilulas xxiv.  
S. One at night.

35.

- R. Sennæ pulveris,  
 Extracti glycyrrhizæ, aa ʒss;  
 Fœniculi seminis,  
 Sulphuris præcipitati, aa ʒij;  
 Sacchari albi, ʒiss. M.

S. One or two teaspoonfuls at bedtime.

(The pulvis glycyrrhizæ compositus, compound licorice powder, of the Prussian Pharmacopœia.)

36.

- R. Ferri sulphatis, ʒij;  
 Aloës pulveris, ʒij;  
 Zingiberis pulveris, ʒiiss;  
 Extracti nucis vomicæ, gr. xl;  
 Confectionis rosæ, q. s. M.

Divid. in pilulas xx.

S. One three times a day.

37.

- R. Podophyllini, gr. ij;  
 Aloës Socotrinæ,  
 Extracti nucis vomicæ,  
 aa gr. xij;  
 Ferri sulphatis exsiccati,  
 gr. xxx. M.

Divid. in pilulas xxiv.

S. One three times a day.

38.

- R. Aloës Socotrinæ,  
 Gambogiæ,  
 Hydrargyri chloridi mitis,  
 aa gr. xv;  
 Extracti taraxaci, q. s. M.

Divid. in pilulas xv.

**Diarrhœa.**

39.

- R. Acidi sulphurici aromatici,  
 Tincturæ capsici, aa gtt. xxx;  
 " opii,  
 " camphoræ, aa fʒj;  
 " zingiberis, fʒij;  
 " cardamomi composi-  
 tæ, fʒx. M.

S. A teaspoonful in a tablespoonful of water every hour, or oftener if necessary.

Useful to travellers as a preventive of diarrhœa from change of water, etc.

40.

- R. Olei ricini, ℥xxiv;  
 Spiritus chloroformi, fʒiiss;  
 Liquoris morphinæ sulphatis,  
 fʒj;  
 Acaciæ pulveris, ʒiiss;  
 Syrupi, fʒss;  
 Aquam ad fʒiv. M.

S. A small dessertspoonful every hour and a half until the bowels are quieted.

41.

- R. Sodii bicarbonatis, ʒj;  
 Tincturæ cardamomi composi-  
 tæ, fʒj;  
 " camphoræ,  
 " opii, aa fʒss;  
 Syrupi rhei aromatici, fʒss;  
 Aquam menthæ piperitæ ad  
 fʒiv. M.

S. A teaspoonful three or four times a day.

42.

- R. *Acidi sulphurici aromatici*,  
f3ij;  
*Extracti hæmatoxyli*, 3ij;  
*Tincturæ opii camphoratæ*,  
f3ss;  
*Syrupi zingiberis*, q. s. ad f3vj.  
M.  
S. A tablespoonful as directed.

**Diarrhœa (of Infants).**

43.

- R. *Bismuthi subcarbonatis*, gr.  
xx;  
*Cretæ præparatæ*, 3j;  
*Spiritus lavandulæ compositi*,  
f3ij;  
*Tincturæ opii*, m̄vj;  
" *kino*, m̄xxiv;  
*Acaciæ pulveris*, 3j;  
*Aquæ*, f3vj;  
*Syrupi*, f3ij. M.  
S. A teaspoonful every hour, or  
three or four hours, for a child of  
one year.

44.

- R. *Magnesiæ sulphatis*, 3j;  
*Tincturæ opii deodoratæ*,  
gtt. xij;  
*Syrupi*, f3ss;  
*Aquæ menthæ piperitæ*, f3iiss.  
M.  
S. A teaspoonful every two or  
three hours for a child one or two  
years of age.

45.

- R. *Extracti hæmatoxyli*, gr. vj;  
*Cretæ precipitatæ*, gr. xij;  
*Syrupi acaciæ*, f3ss;  
*Tincturæ opii camphoratæ*,  
gtt. xij;  
*Aquæ fœniculi*, f3ij. M.  
S. A teaspoonful every three  
hours for a very young child.

46.

- R. *Misturæ cretæ*, f3iij;  
*Tincturæ krameris*, f3j. M.  
S. A teaspoonful after each loose  
evacuation, or three or four times  
daily.

47.

- R. *Creasoti*, gtt. ij;  
*Acidi acetici diluti*, m̄xij;  
*Tincturæ opii*, gtt. xxiv;  
" *krameris*, f3vj;  
*Mucilaginis acaciæ*, f3iiss;  
*Aquæ menthæ piperitæ*, f3iiss.  
M.  
S. A dessertspoonful every three  
or four hours to a child three or  
four years of age with fetid diar-  
rhœa.

**Diphtheria.**

48.

- R. *Acidi salicylici*, gr. xxv;  
*Alcoholis*, f3ss;  
*Aquæ destillatæ*, f3v. M.  
S. Use as a gargle.

49.

- R. *Tincturæ ferri chloridi*, f3ss;  
*Quinæ sulphatis*, gr. xij;  
*Potassii chloratis*, 3ij;  
*Syrupi*, f3ss;  
*Glycerinæ*, f3ij. M.  
S. A dessertspoonful in a wine-  
glassful of water every three hours.

**Dropsy.**

50.

- R. *Pilulæ hydrargyri*, gr. xxx;  
*Digitalis foliorum*, gr. v;  
*Scillæ pulveris*, gr. xv. M.  
Divid. in pilulas x.  
S. One three times a day.

51.

- R. Digitalis,  
 Scillæ, aa gr. xxx;  
 Potassii nitratis, ʒj. M.  
 Divid. in pilulas xxx.  
 S. One three times daily.

**Dysentery, Chronic.**

52.

- R. Extracti hæmatoxyli, ʒij;  
 Acidi sulphurici aromatici,  
 fʒiij;  
 Tincturæ opii camphoratæ,  
 fʒiiss;  
 Syrupi zingiberis, fʒiv. M.  
 S. A tablespoonful every three  
 or four hours, in water.

**Dyspepsia.**

53.

- R. Bismuthi subnitratis, ʒj;  
 Sodii bicarbonatis,  
 Calumbæ radiceis pulveris,  
 aa ʒss;  
 Zingiberis pulveris, gr. xx. M.  
 Divid. in chartas xij.  
 S. One three times a day.

54.

- R. Calcis lactophosphatis,  
 Pepsinæ, aa ʒj;  
 Pancreatinæ, gr. xxx.  
 Ferri lactophosphatis, ʒj. M.  
 Divid. in pilulas xxx.  
 S. One three times a day.

55.

- R. Acidi nitromuriatici diluti,  
 fʒss;  
 Quinæ sulphatis, gr. xxxij;  
 Strychnis sulphatis, gr. ss;  
 Tincturæ cardamomi compo-  
 sitæ, fʒj;  
 Aquam menthæ viridis ad  
 fʒviij. M.  
 S. A tablespoonful three times a  
 day in water.

**Epilepsy.**

56.

- R. Sodii bromidi,  
 Ammonii bromidi, aa ʒss;  
 Elixiris cinchonæ, fʒj;  
 Tincturæ belladonnæ, fʒj;  
 Glycerinæ, fʒj;  
 Aquæ, fʒj. M.  
 S. A teaspoonful, after meals, in  
 water.

57.

- R. Choralis, ʒij;  
 Ammonii bromidi, ʒiv;  
 Syrupi lactucarii,  
 “ zingiberis, aa fʒiij. M.  
 S. A dessertspoonful three times  
 daily.

**Erysipelas.**

58.

- R. Sodii sulphitis, gr. x;  
 Aquæ, fʒj. M.  
 S. Use as a wash.

**Erythema.**

59.

- R. Spiritūs rosmarini,  
 " vini rectificati, aa fʒj;  
 Misturæ amygdalæ amaræ,  
 fʒvj. M.  
 S. Apply as a wash.

60.

- R. Hydrargyri chloridi corrosivi,  
 gr. iss;  
 Glycerinæ, fʒij  
 Chloroformi, ℥xx;  
 Aquæ rosæ, fʒvj. M.  
 S. Apply as a wash.

**Flatulence.**

61.

- R. Magnesii carbonatis, ʒij;  
 Spiritūs ætheris, fʒss;  
 Tincturæ opii camphoratæ,  
 fʒij;  
 Aquæ menthæ viridis, q. s. ad  
 fʒviij. M.  
 S. A wineglassful when needed.  
 (See Colic.)

62.

- R. Sodii bicarbonatis, ʒj  
 Spiritūs ammoniæ aromatici,  
 fʒij;  
 Aquæ menthæ piperitæ, fʒiv.  
 M.  
 S. A tablespoonful for an adult;  
 one to two teaspoonfuls for a child.  
 (The mixture is known as Soda  
 Mint.)

**Freckles.**

63.

- R. Zinci sulphocarbolutis, ʒj;  
 Olei limonis, ℥xxv;  
 Alcoholis (absolut.), fʒss;  
 Collodii, q. s. ad fʒvj. M.  
 S. Apply to the part.

64.

- R. Zinci sulphocarbolutis, ʒij;  
 Glycerinæ, fʒij;  
 Alcoholis, fʒss;  
 Aquæ rosæ, q. s. ad fʒviij.  
 M.  
 S. Apply to the part.

**Gastric Catarrh.**

65.

- R. Bismuthi subnitratæ, ʒj;  
 Potassii bromidi, ʒiss-ij;  
 Acidi hydrocyanici diluti,  
 ℥xxv;  
 Spiritūs chloroformi, fʒj;  
 Mucilaginis tragacanthæ, fʒiss;  
 Aquæ, fʒvj. M.  
 S. Half a wineglassful every  
 three or four hours (before eating).

**Gonorrhœa.**

66.

- R. Lignoris plumbi subacetatis,  
 fʒj;  
 Zinci sulphatis, gr. vj;  
 Vini opii, ℥xxx;  
 Aquæ destillatæ, fʒvj. M.  
 S. Use as an injection.



67.

R. Copaibæ,  
 Spiritûs ætheris nitrosi,  
 aa fʒss;  
 Acaciæ pulveris,  
 Sacchari, aa ʒj;  
 Spiritûs lavandulæ compo-  
 siti, fʒij;  
 Tincturæ opii, fʒj;  
 Aquæ destillatæ, fʒiv. M.  
 S. A tablespoonful three times a  
 day.

68.

R. Zinci sulphatis, gr. iv;  
 Plumbi acetatis, gr. viij;  
 Tincturæ opii,  
 " catechu, aa mxxv;  
 Aquæ destillatæ, fʒj. M.  
 S. Inject thrice daily.

69.

R. Copaibæ, fʒj;  
 Liquoris potassæ, fʒij;  
 Extracti glycyrrhizæ fluidi,  
 fʒss;  
 Spiritûs ætheris nitrosi, fʒj;  
 Syrupi acaciæ, fʒvj;  
 Olei gaultheriæ, gtt. xvj. M.  
 S. A tablespoonful three times a  
 day.

70.

R. Copaibæ,  
 Spiritûs ætheris nitrosi,  
 aa fʒss;  
 Liquoris potassæ, mxxx;  
 Spiritûs lavandulæ compositi,  
 fʒss;  
 Mucilaginem acaciæ ad fʒiv.  
 M.  
 S. A tablespoonful three times a  
 day.

71.

R. Copaibæ, fʒss;  
 Tincturæ ferri chloridi,  
 " cantharidis, aa fʒij;  
 Syrupum acaciæ ad fʒiv. M.  
 S. A tablespoonful three times  
 a day.

**Hysteria.**

72.

R. Potassii bromidi, ʒij;  
 Elixiris ammonii valerianatis,  
 fʒiij. M.  
 S. A dessertspoonful every three  
 hours.

**Incontinence of Urine.**

73.

R. Tincturæ ergotæ, fʒj;  
 " ferri chloridi,  
 Spiritûs chloroformi, aa mxxx;  
 Infusum quassiæ ad fʒvj. M.  
 S. Half a wineglassful three  
 times a day.

**Insomnia.**

74.

R. Potassii bromidi,  
 Chloralis, aa ʒj;  
 Morphicæ sulphatis, gr. j;  
 Aquæ, fʒiij. M.  
 S. A tablespoonful, in water, as  
 directed.

75.

- R. Chloralis, ʒij;  
Morphiæ sulphatis, gr. iss;  
Syrupi aurantii, fʒj;  
Aquæ, fʒij. M.  
S. A dessertspoonful at bedtime.

**Mania, etc.**

76.

- R. Phosphori, gr. j;  
Acaciæ pulveris, gr. viiss;  
Glycerinæ, ℥viiss;  
Extracti glycyrrhizæ pulveris,  
gr. xxiiss;  
Glycyrrhizæ radiceis pulveris,  
gr. xxiiss;  
Aquæ, ℥xij. M.  
Divid. in pilulas xxx.  
(The pill to be coated with col-  
lodion.)  
S. One after each meal.

**Menorrhagia.**

77.

- R. Tincturæ ferri chloridi,  
Acidi phosphorici diluti,  
Extracti ergotæ fluidi, aa fʒvj;  
Aquæ cinnamomi ad fʒviij.  
M.  
S. A dessertspoonful three times  
a day.

**Nausea, etc.**

78.

- R. Tincturæ cardamomi com-  
positæ,  
Syrupi zingiberis, aa fʒss;  
Spiritus anisi, fʒvj;  
Aquæ camphoræ, fʒj;  
" menthæ piperitæ, fʒv.  
M.  
S. A tablespoonful *pro re nata*.

79.

- R. Sodii bicarbonatis, gr. xj;  
Infusi gentianæ compositi,  
fʒiiss;  
Tincturæ cardamomi com-  
positæ, fʒss;  
Aquæ menthæ piperitæ, fʒiij.  
M.  
S. A tablespoonful three times a  
day.

80.

- R. Opii pulveris, gr. vj;  
Ætheris, gtt. xij;  
Syrupi, fʒj;  
Aquæ menthæ piperitæ, fʒv.  
M.  
S. A tablespoonful every hour.  
(Shake before using.)

81.

- R. Acidi sulphurici aromatiol.,  
fʒiij;  
Tincturæ cardamomi com-  
positæ;  
Syrupi aurantii corticis, aa  
fʒj;  
Aquæ camphoræ, fʒiiss. M.  
S. A tablespoonful *pro re nata*.  
(See Vomiting.)

**Neuralgia.**

82.

- R. Iodoformi, gr. xxx;  
Aquæ ammoniæ,  
Chloroformi, aa fʒss;  
Linimenti saponis camphorati,  
fʒiij. M.  
S. Rub over the seat of pain  
twice daily.

83.

- R. Camphoræ, ℥j ;  
 Chloralis, ℥ss ;  
 Chloroformi, ℥iiss ;  
 Linimenti saponis, ℥iiss. M.  
 S. Apply as a liniment over the  
 seat of pain.

84.

- R. Zinci phosphidi, gr. xxx ;  
 Ergotinæ, gr. iiss. M.  
 Divid. in pilulas xxx.  
 S. One after each meal.

**Phthisis, etc.**

85.

- R. Olei morrhuæ,  
 Syrupi calcis lactophosphatis,  
 aa ℥iv ;  
 Acaciæ pulveris, ℥j ;  
 Acidi phosphorici diluti, ℥ij ;  
 Olei amygdalæ amaræ, gtt. vj ;  
 Aquæ, ℥j. M.  
 S. A tablespoonful three times a  
 day.

86.

- R. Ovorum vitelli, iij ;  
 Olei morrhuæ, ℥viiij ;  
 Vini Xerici, ℥iv ;  
 Alcoholis, ℥j ;  
 Acidi phosphorici diluti,  
 Syrupi, aa ℥j ;  
 Aquæ amygdalæ amaræ, ℥viiij.  
 M.  
 S. A tablespoonful three times a  
 day.

**Pleuritic Effusions.**

87.

- R. Olei tiglii, ℥j ;  
 Ætheris fortioris, ℥ij ;  
 Tincturæ iodinii, ℥v. M.  
 S. Apply two or three coats at  
 a time with a camel's hair brush,  
 over a small surface, once a week.

If a stronger paint be indicated,  
 the following may be employed :—

88.

- R. Olei tiglii, ℥ij ;  
 Ætheris fortioris, ℥iv ;  
 Tincturæ iodinii, ℥ij ;  
 Potassii iodidi, ℥j ;  
 Iodinii, gr. x. M.  
 S. Apply as directed in previous  
 formula.

**Pruritus.**

89.

- R. Camphoræ pulveris,  
 Chloralis, aa ℥j ;  
 Unguenti aquæ rosæ, ℥j. M.  
 S. Apply locally (only where the  
 skin is unbroken).

(See Pruritus Vulvæ.)

**Pruritus Vulvæ.**

90.

- R. Zinci sulphocarbolatis, ℥j ;  
 Aquæ destillatæ, ℥ij. M.  
 S. Apply twice a day.

- |   |  |
|---|--|
| <p>91.<br/> R. Sodii boratis, ʒij;<br/> Morphiæ muriatis, gr. xx;<br/> Acidi hydrocyanici diluti, fʒj;<br/> Glycerinæ, fʒj;<br/> Aquæ rosæ, fʒviiij. M.<br/> S. Apply with a soft sponge.</p> <p>92.<br/> R. Zinci oxidi, ʒj;<br/> Sodii boratis, ʒij;<br/> Cerati, ʒiv;<br/> Olei amygdalæ dulcis, q. s.<br/> Morphiæ muriatis, gr. j. M.<br/> S. Apply locally.</p> <p>93.<br/> R. Morphiæ acetatis, gr. j;<br/> Liquoris potassii arsenitis, fʒij;<br/> Aquam ad fʒiiij. M.<br/> S. A teaspoonful three times a day.</p> <p>94.<br/> R. Acidi carbolici, gr. x;<br/> Morphiæ acetatis, gr. viij;<br/> Acidi hydrocyanici diluti, fʒij;<br/> Glycerinæ, fʒiv;<br/> Aquam ad fʒiv. M.<br/> S. Apply locally.</p> <p>95.<br/> R. Potassii cyanidi, gr. j-ss;<br/> Adipis, ʒiv;<br/> Liquoris calcis, fʒiv. M.<br/> S. Apply locally.</p> <p>96.<br/> R. Acidi acetici,<br/> Glycerinæ, aa fʒss. M.<br/> S. Apply locally.</p> | <p>97.<br/> R. Acidi boracici (pulv. subtiliss.), ʒiv;<br/> Unguenti, ʒj. M.<br/> S. Apply locally.</p> <p>98.<br/> R. Sodii bisulphitis, ʒiv;<br/> Aquæ, fʒiv. M.<br/> S. Apply locally.</p> <p>99.<br/> R. Hydrargyri chloridi corrosivi,<br/> gr. j;<br/> Aluminis, gr. xx;<br/> Amyli, ʒiss;<br/> Aquæ, fʒvj. M.<br/> S. Apply locally.</p> <p>100.<br/> R. Aluminii nitratis, gr. vj;<br/> Aquæ destillatæ, fʒj. M.<br/> S. Apply locally.</p> <p style="text-align: center;"><b>Rheumatism.</b></p> <p>101.<br/> R. Acidi salicylici, gr. xv;<br/> Ammonii citratis, gr. xxx;<br/> Syrupi, fʒj;<br/> Aquam destillatam ad fʒiv. M.<br/> S. A single dose.</p> <p>102.<br/> R. Tincturæ arnicæ, fʒj;<br/> " camphoræ,<br/> " opii,<br/> Spiritus ammoniæ, aa fʒss;<br/> Olei olivæ, fʒj. M.<br/> S. Liniment.</p> |
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103.

- R. *Acidi salicylici*, ℥ij;  
*Vini colchici seminis*, f℥ij;  
*Glycerinæ*, f℥ss;  
*Potassii bicarbonatis*, gr. xxx;  
*Aquam ad* f℥iv. M.  
 S. A tablespoonful as directed.

104.

- R. *Acidi salicylici*, ℥ss;  
*Tincturæ opii deodoratæ*, f℥ij;  
*Syrupi*, f℥j;  
*Mucilaginis acaciæ*, f℥ij. M.  
 S. A teaspoonful three times a day.

**Salivation.**

105.

- R. *Acidi tannici*, gr. xxx-℥j;  
*Mellis*, f℥ij;  
*Aquæ*, f℥vj. M.  
 S. Mouth wash.

106.

- R. *Aluminis*, ℥j;  
*Tincturæ krameris*, f℥ss;  
*Aquæ gaultheris*, f℥iv. M.  
 S. Mouth wash.

107.

- R. *Extracti krameris*;  
*Aluminis*, aa ℥j;  
*Aquæ rosæ*, f℥iv. M.  
 S. Mouth wash.

**Sick Headache.**

108.

- R. *Potassii bromidi*, ℥ij;  
*Extracti belladonnæ fluidi*,  
 ℥l xxx;  
*Aquæ destillatæ*, f℥ij. M.  
 S. Half a teaspoonful to a tea-  
 spoonful every three or four hours.

**Sore Nipples.**

109.

- R. *Acidi salicylici*, ℥j;  
*Sodii boratis*, ℥iv;  
*Glycerinæ*, f℥iv. M.  
 S. Apply to the breast.

110.

- R. *Plumbi nitratis*, gr. xx-xxx;  
*Glycerinæ*, f℥j. M.  
 S. Apply to the breast.

111.

- R. *Acidi tannici*, ℥j;  
*Collodii*, f℥j. M.  
 S. Apply to the breast.

112.

- R. *Iodoformi*, ℥j;  
*Glycerinæ*, f℥ss-j. M.  
 S. Apply to the breast.

**Sore Throat.**

113.

- R. *Acidi carbolicī*, ℥ xx ;  
 " *aceticī*, ℥ ss ;  
*Mellis*,  
*Tincturæ myrrhæ*, aa f ℥ ij ;  
*Aquæ* ad f ℥ vj. M.  
 S. Gargle.

**Spinal Irritation.**

114.

- R. *Potassii bromidi*, ℥ ss ;  
*Extracti valerianæ fluidi*, f ℥ ij ;  
*Spiritūs ammoniæ aromatici*,  
 f ℥ j ;  
*Syrupi*, f ℥ j. M.  
 S. A teaspoonful three or four  
 times daily.

**Toothache.**

115.

- R. *Creasoti*,  
*Aquæ ammoniæ fortioris*,  
*Tincturæ myrrhæ*, aa f ℥ j. M.  
 S. Apply on very small piece of  
 cotton-wool soaked into the cavity.

116.

- R. *Acidi carbolicī* (sol. sat.),  
*Tincturæ opii*,  
*Extracti acorniti fluidi*, aa f ℥ j ;  
*Olei menthæ piperitæ*, ℥ xxx.  
 M.  
 S. Apply on cotton to the cavity.

117.

- R. *Creasoti*,  
*Chloroformi*, aa f ℥ j ;  
*Vini opii*, f ℥ ij ;  
*Tincturæ benzoini*, ℥ xxx. M.  
 S. Apply on cotton to the cavity.

**Ulcers.**

118.

- R. *Collodii*, f ℥ j ;  
*Olei ricini*,  
*Acidi carbolicī*, aa f ℥ ss. M.  
 S. Apply locally.  
 The name *carbolic collodion* has  
 been given to this mixture.

119.

- R. *Acidi carbolicī*, ℥ ss ;  
*Camphoræ pulveris*, ℥ ss ;  
*Cerati*, ℥ vij. M.  
 S. Apply locally.

**Vomiting.**

120.

- R. *Acidi hydrocyanici diluti*,  
 gtt. xx ;  
*Bismuthi subnitratī*, ℥ j ;  
*Tincturæ gentianæ compositæ*,  
 f ℥ ij ;  
*Syrupi zingiberis*, f ℥ j ;  
*Spiritūs ammoniæ aromatici*,  
 f ℥ j ;  
*Aquæ*, f ℥ ij. M.  
 S. A tablespoonful three times  
 daily.

121.

- R. Chloroformi, fʒij;  
 Tincturæ aconiti, fʒiiss;  
 " opii camphoratæ,  
 fʒss;  
 Aquæ puræ, fʒiij. M.  
 S. A teaspoonful every hour.

122.

- R. Bismuthi subnitratæ, ʒj;  
 Potassii bromidi, ʒiiss;  
 Acidi hydrocyanici diluti,  
 ℥xxx;  
 Spiritûs chloroformi, fʒj;  
 Mucilaginis tragacanthæ,  
 fʒiiss;  
 Aquam ad fʒvj. M.  
 S. Two tablespoonfuls every  
 three or four hours.

(See Nausea.)

### Vomiting of Pregnancy.

123.

- R. Spiritûs pyroxylicæ rectificatæ,  
 fʒij;  
 Tincturæ cardamomi compo-  
 sitæ, fʒviiij. M.  
 S. A teaspoonful every four  
 hours.

124.

- R. Acidi nitrici diluti,  
 " muriatici diluti, aa fʒij;  
 Tincturæ gentianæ compositæ,  
 fʒss;  
 Aquam ad fʒviiij. M.  
 S. Two tablespoonfuls three  
 times a day.

(See Vomiting.)

### Whooping-cough.

125.

- R. Chloralis, gr. xij;  
 Vini ipecacuanhæ, fʒj;  
 Syrupi aurantii corticis, fʒij;  
 Aquæ menthæ piperitæ, fʒss.  
 M.  
 S. A teaspoonful every fifteen  
 or twenty minutes.

126.

- R. Potassii bromidi, gr. xxx;  
 Tincturæ conii, fʒj;  
 Syrupi scillæ, fʒiij;  
 Aquæ, fʒvj. M.  
 S. A tablespoonful every two  
 hours.

127.

- R. Potassii bicarbonatis, ʒij;  
 " bromidi, ʒss;  
 Syrupi ipecacuanhæ,  
 " tolutani, aa fʒj;  
 Aquæ, fʒj. M.  
 S. A teaspoonful every four or  
 five hours.

## RULES FOR MANAGEMENT OF INFANTS DURING THE HOT SEASON.

The following special rules for the care of young children during the summer season are those recommended by the Obstetrical Society of Philadelphia to the thoughtful attention of mothers.<sup>1</sup> As they are of universal applicability in every portion of this country, and embrace in their recommendations so many points on which the practitioner is frequently consulted by parents in connection with the hygiene and general management of infants, it is hoped that their reproduction here will be the means of giving them a still more widespread dissemination:—

**RULE 1.**—Bathe the child once a day in tepid water. If it is feeble, sponge it all over twice a day with tepid water, or with tepid water and vinegar. The health of a child depends much upon its cleanliness.

**RULE 2.**—Avoid all tight bandaging. Make the clothing light and cool, and so loose that the child may have free play for its limbs. At night undress it, sponge it, and put on a slip. In the morning remove the slip, bathe the child, and dress it in clean clothes. If this cannot be afforded, thoroughly air the day-clothing by hanging it up during the night. Use clean diapers, and change them often. Never dry a soiled one in the nursery or in the sitting-room, and never use one for a second time without first washing it.

<sup>1</sup> A committee of this Society, appointed "to consider the Causes and the Prevention of Infant Mortality during the Summer Months," reported these rules March 5, 1874. The committee consisted of Drs. William Goodell (Chairman), J. Forsyth Meigs, John L. Ludlow, Albert H. Smith, John S. Parry, and William F. Jenks.



RULE 3.—The child should sleep by itself in a cot or a cradle. It should be put to bed at regular hours, and be early taught to go to sleep without being nursed in the arms. Without the advice of a physician, never give it any *Spirits, Cordials, Carminatives, Soothing Syrups, or Sleeping Drops. Thousands of children die every year from the use of these poisons.* If the child frets and does not sleep, it is either hungry or else ill. If ill, it needs a physician. Never quiet it by candy or by cake; they are the common causes of diarrhoea and of other troubles.

RULE 4.—Give the child plenty of fresh air. In the cool of the morning and evening, send it out to the shady sides of broad streets, to the public squares, or to the Park. Make frequent excursions on the rivers. Whenever it seems to suffer from the heat, let it drink freely of ice-water. Keep it out of the room in which washing or cooking is going on. It is excessive heat that destroys the lives of young infants.

RULE 5.—Keep your house sweet and clean, cool and well aired. In very hot weather let the windows be open day and night. Do your cooking in the yard, in a shed, in the garret, or in an upper room. Whitewash the walls every spring, and see that the cellar is clear of all rubbish. Let no slops collect to poison the air. Correct all foul smells by pouring into the sinks and privies Carbolic Acid or Quicklime, or the Chloride of Lime, or a strong solution of Copperas. These articles can be got from the nearest druggist, who will give the needful directions for their use. Make every effort yourself, and urge your neighbors to keep clean the gutters of your street or of your court.

RULE 6.—*Breast-milk is the only proper food for infants.* If the supply is ample and the child thrives on it, no other

kind of food should be given—while the hot weather lasts. If the mother has not enough, she must not wean the child, but give it, besides the breast, goat's or cow's milk, as prepared under RULE 8. Nurse the child once in two or three hours during the day, and as seldom as possible during the night. Always remove the child from the breast as soon as it has fallen asleep. Avoid giving the breast when you are over-fatigued or overheated.

RULE 7.—If, unfortunately, the child must be brought up by hand, it should be fed on a milk-diet alone—that is, warm milk out of a nursing bottle, as directed under RULE 8. Goat's milk is the best, and, next to it, cow's milk. If the child thrives on this diet, *no other kind of food whatever should be given while the hot weather lasts.* At all seasons of the year, but especially in summer, there is no safe substitute for milk if the infant has not cut its front teeth.<sup>1</sup> *Sago, arrow-root, potatoes, corn-flour,*

<sup>1</sup> The practitioner is reminded that the *periods of eruption of the teeth* are the following :—

*First Dentition.*

As a rule, the teeth of the lower jaw precede those of the upper, except in the case of the lateral incisors.

Central incisors	.	.	.	5th to 8th month.
Lateral incisors	.	.	.	7th to 9th "
First molars	.	.	.	12th to 16th "
Canines	.	.	.	16th to 20th "
Second molars	.	.	.	20th to 36th "

*Second Dentition.*

First molars	.	.	.	5th to 7th year.
Central incisors	.	.	.	7th to 8th "
Lateral incisors	.	.	.	8th to 9th "
First bicuspid	.	.	.	9th to 10th "
Second bicuspid	.	.	.	10th to 11th "
Canines	.	.	.	11th to 12th "
Second molars	.	.	.	12th to 13th "
Third molars	.	.	.	17th to 21st "

*crackers, bread, every patented food, and every article of diet containing starch, cannot and must not be depended on as food for very young infants. Creeping or walking children must not be allowed to pick up unwholesome food.*

**RULE 8.**—If the milk is known to be pure, it should have one-third part of hot water added to it, until the child is three months old; after this age the proportion of water should be gradually lessened. Each half pint of this food should be sweetened, either with a heaping dessertspoonful of sugar of milk, or with a teaspoonful of crushed sugar. When the heat of the weather is great, the milk may be given quite cold. Be sure that the milk is unskinned; have it as fresh as possible, and brought very early in the morning. Before using the pans into which it is to be poured, always scald them with boiling suds. In very hot weather, boil the milk as soon as it comes, and at once put away the vessels holding it in the coolest place in the house—upon ice if it can be afforded, or down a well. Milk, carelessly allowed to stand in a warm room, soon spoils and becomes unfit for food.

**RULE 9.**—If the milk should disagree, a tablespoonful of lime-water<sup>1</sup> may be added to each bottleful. Whenever pure milk cannot be got, try the Condensed Milk, which often answers admirably. It is sold by all the leading druggists and grocers, and may be prepared by adding to ten tablespoonfuls of boiling water without sugar, one tablespoonful or more of the milk, according to the age of the child. Should this disagree, a teaspoon-

<sup>1</sup> *To make lime-water*, take a handful of quicklime, slake it and put it into a quart bottle full of soft water. Shake the bottle well, and then allow the undissolved portion of the lime to settle. Pour off the clear liquid when needed, replacing it with more water, and afterwards shaking the bottle briskly.

ful of arrow-root, of sago, or of corn-starch may be cautiously added to a pint of the milk, as prepared under RULE 8. If milk in any shape cannot be digested, try, for a few days, pure cream diluted with three-fourths or four-fifths of water—returning to the milk as soon as possible.

RULE 10.—The nursing-bottle must be kept perfectly clean; otherwise the milk will turn sour, and the child will be made ill. After each meal, it should be emptied, rinsed out, taken apart, and the nipple and bottle placed in clean water, or in water to which a little soda has been added. It is a good plan to have two nursing-bottles, and to use them by turns. The best kind is the plain bottle with a rubber nipple and no tube.

RULE 11.—Do not wean the child just before or during the hot weather; nor, as a rule, until after its second summer. If suckling disagrees with the mother, she must not wean the child, but feed it in part, out of a nursing-bottle, on such food as has been directed. However small the supply of breast-milk, provided that it agrees with the child, the mother should carefully keep it up against sickness; it alone will often save the life of a child when everything else fails. When the child is over six months old, the mother may save her strength by giving it one or two meals a day of stale bread and milk, which should be pressed through a sieve and put into a nursing-bottle. When from eight months to a year old, it may have also one meal a day of the yolk of a fresh and rare-boiled egg, or one of beef or mutton-broth into which stale bread has been crumbed. When older than this, it can have a little meat finely minced; but even then milk should be its principal food, and not such food as grown-up people eat.

To these recommendations may be added the following suggestions for the dietetic treatment of weakly and emaciated infants two or three months old, brought up by hand, in whom milk with lime-water excites griping and flatulence, with occasional attacks of vomiting and purging.<sup>1</sup> In these cases we can often succeed in rendering the milk and lime-water digestible by adding an aromatic. Thus, to half a pint of cold milk add a teaspoonful of caraway seeds or chopped cinnamon, inclosed in a small muslin bag, and boil for five minutes. The bag is then withdrawn, and the lime-water, and milk-sugar, are afterwards added as usual.

If this do not succeed, one of the diets given below can be tried.

The child is to be fed every three hours from a feeding bottle with the following in alternate meals:—

1. One teaspoonful of Liebig's food for infants<sup>2</sup> dissolved in a teacupful of new milk and water (equal parts), with the addition of one tablespoonful of cinnamon-water.

2. A teacupful of fresh whey containing a teaspoonful of cream.

If the amount of milk given above cannot be digested, as often happens, the proportion of water used to dilute

<sup>1</sup> Eustace Smith, *Wasting Diseases of Infants and Children*; London, 1870, p. 281.

<sup>2</sup> *Liebig's Food for Infants* consists of half an ounce (rather more than a heaped-up tablespoonful) of wheaten-flour, an equal quantity (rather more than a heaped-up dessertspoonful) of malt flour,  $7\frac{1}{2}$  grains of bicarbonate of potassium, and an ounce of water well mixed; to which is added five ounces of fresh milk. The whole is put on a gentle fire, until it begins to thicken, when it must be removed, stirred for several minutes, again heated and stirred till fluid, and then boiled, and passed through a sieve. It is slightly aperient, and, in cases of diarrhoea, prepared chalk, gr. xx., may be substituted for the bicarbonate of potassium.

the milk may be increased to two thirds; or in some of the meals the milk may be altogether omitted, using instead barley-water, or equal parts of barley-water and weak chicken-broth, in which the Liebig's food can be dissolved.

In the above cases Prof. Charles D. Meigs<sup>1</sup> recommends the following: A scruple of gelatin (*i. e.*, a square inch of the gelatin cake) is soaked in cold water, and is then boiled for ten or fifteen minutes in half a pint of water until it dissolves. To this, at the termination of the boiling, are added, while stirring, three ounces of milk, and a teaspoonful of arrow-root, the latter having been previously mixed into a paste with a little cold water. Lastly, just before removal from the fire, half an ounce of cream is stirred up with the rest, and the whole is sweetened with loaf sugar. Of this food three or four ounces or more can be given every two or three hours from a feeding-bottle.

These diets are suitable to all infants suffering from simple atrophy due to improper feeding. It will, however, be necessary to vary the quantities somewhat according to age. Thus, a child of six months old will usually be able to take a teaspoonful of Liebig's food for infants, dissolved in milk more or less diluted, for each meal.

For a child of the same age, Prof. Meigs's food may be strengthened by increasing the quantity of milk to six or ten ounces, and of cream to one or two ounces.

In all these cases of simple atrophy just mentioned, a wet nurse should be provided if possible.

<sup>1</sup> J. F. Meigs and W. Pepper on Diseases of Children; Philada., 1877.

**Brief Rules for Cases of Emergency in Children.<sup>1</sup>**

1. If the child is suddenly attacked with vomiting, purging, and prostration, send for a doctor at once. In the mean time, put the child for a few minutes in a hot bath, then carefully wipe it dry with a warm towel, and wrap it in warm blankets. If its hands and feet are cold, bottles filled with hot water and wrapped in flannel should be laid against them.

2. A mush-poultice, or one made of flaxseed meal, to which one-quarter part of mustard flour has been added, or flannels wrung out of hot vinegar and water, should be placed over the belly.

3. Five drops of brandy in a teaspoonful of water may be given every ten or fifteen minutes; but if the vomiting persist, give this brandy in the same quantity of milk and lime-water.

4. If the diarrhoea has just begun, or if it is caused by improper food, a teaspoonful of castor oil, or of the spiced syrup of rhubarb, should be given.

5. If the child has been fed partly on the breast and partly on other food, the mother's milk alone must now be used. If the child has been weaned, it should have its milk-food diluted with lime-water, or should have weak beef-tea, or chicken-water.

6. The child should be allowed to drink cold water freely.

7. The soiled diapers or the discharges should be at once removed from the room, but saved for the physician to examine at his visit.

<sup>1</sup> These rules were also suggested by the Committee of the Obstetrical Society of Philadelphia, previously alluded to (p. 201).

Several dietetic articles especially adapted for young children are described under the head of "Dietetic Preparations for the Sick." It is not considered expedient or desirable to isolate them from such a general list, as they are appropriate, in some instances, as auxiliary to the treatment of the adult sick.

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## ERUPTIVE FEVERS.

(A TABULAR VIEW.)

The arrangement of various exanthematous diseases in a group, to exhibit their different characteristics, may aid to fix in the memory of the practitioner the periods, dates, and appearances peculiar to each. The table is, of course, founded on an average of a large number of cases, and is, therefore, correct in the great majority of instances, although anomalies occasionally arise, in which some slight deviation may occur. For all practical purposes, it will prove a useful and reliable guide.



*Eruptive Fevers.*

Name.	Period of incubation.	Day of rash.	Character of rash.	Rash fades.	Duration of illness.
Measles . .	10 to 14 days.	4th day of fever, or after 72 hours' illness.	Small red dots like flea-bites.	On 7th day of fever.	6 to 10 days.
Scarlet fever	4 to 6 days.	2d day of fever, or after 24 hours' illness.	Bright scarlet diffused.	On 5th day of fever.	8 or 9 days.
Typhus "	1 to 12 days.	4th to 7th day.	Mulberry color generally over abdomen.	.....	14 to 21 days.
Typhoid "	10 to 14 days, or suddenly.	7th to 14th day.	Rose-colored spots, few in number.	.....	22 to 30 days.
Smallpox .	12 days.	3d day of fever, or after 48 hours' illness.	Small red pimples, becoming vesicles, then pustules.	Scabs form on 9th or 10th day of fever, and fall off about the 14th.	14 to 21 days.
Chicken pox	4 days.	2d day of fever, or after 24 hours' illness.	Small rose pimples, becoming vesicles.	Slight scabs form about 4th day of fever.	6 or 7 days.
Erysipelas .	3 to 7 days.	2d or 3d day.	Diffuse redness and swelling.		

## DIAGNOSTIC SYLLABUS OF UTERINE INFLAMMATIONS.

The usual means of diagnosis may be thus arranged to show at a glance what they reveal:—

### *Means of Diagnosis of Uterine Diseases.<sup>1</sup>*

Gen'l symptoms.	Touch.	Speculum.	Probe.
<b>1. Pain:</b> Locality and character. Amount. <b>2. Leucorrhœa:</b> Character. Amount. Constancy. <b>3. Menstruation:</b> Regularity. Amount. Pain.	<b>Reveals:</b> <b>1.</b> Perviousness of vaginal canal. <b>2.</b> Location, size, density, and tenderness of cervix. <b>3.</b> Os open or <i>vice versa</i> , soft or <i>vice versa</i> , smooth or rough, moist or dry, enlarged or elongated or atrophied. <b>4.</b> Presence or absence of hardness or tumefaction of recto-vaginal or cysto-vaginal spaces; also nature of the same. <b>5.</b> State of ovaries and pelvic areolar tissue determined by lateral and upward pressure. <b>By Conjoined Manipulation.</b> <b>6.</b> Volume, shape, sensitiveness of uterus, ovaries, broad ligaments, and bladder. <b>By Rectal Touch,</b> double and single: <b>7.</b> Condition of posterior wall of uterus.	<b>1.</b> Reveals color of mucous membrane of vaginal tract and cervix, and condition of os. <b>2.</b> Nature of leucorrhœa. <b>3.</b> Declares atrophy or hypertrophy of cervix. <b>4.</b> Reveals nature of mucus, abrasions and "ulcerations."	<b>1.</b> Reveals capacity of uterus. <b>2.</b> Existence of foreign growths. <b>3.</b> Shows deviations of course of canal, and differentiates them from tumors. <b>4.</b> Indicates endometritis.

Having thus learned what general information may be obtained by the different means of diagnosis employed in uterine affections, we may now make the application of it to the specific varieties of uterine inflammation. The arrangement in a syllabic group is well calculated to fix in the mind the various symptoms of each affection as thus diagnostically revealed.

<sup>1</sup> Prof. J. H. Etheridge, M.D., Chicago Med. Journal and Examiner Sept. 1876, p. 812.

*Diagnostic Syllabus of Varieties of*

MEANS OF DIAGNO- SIS.	1. METRITIS.		2. CERVICITIS.	
	Acute. ( <i>Very rare.</i> )	Chronic.	Acute.	Chronic.
1. General symptoms.	<p><i>a.</i> Violent pelvic pain, accompanied with rectal, vesical, and uterine tenesmus, and sometimes with nausea and vomiting.</p> <p><i>b.</i> Pressure over abdomen reveals great sensitiveness.</p>	<p><i>a.</i> Dull, heavy, dragging pain in pelvis, increased by locomotion.</p> <p><i>b.</i> Defecation and coition painful.</p> <p><i>c.</i> Menses accompanied with pain, which begins several days previous.</p> <p><i>d.</i> Pain in mammae during and before menstruation.</p> <p><i>e.</i> Darkening of areolæ of the breast.</p> <p><i>f.</i> Nausea and vomiting.</p> <p><i>g.</i> Great nervous disturbance.</p> <p><i>h.</i> Pressure on rectum with hæmorrhoids and tenesmus.</p> <p><i>i.</i> Pressure on bladder with vesical tenesmus.</p>	<p>See Acute Metritis.</p> <p><i>a.</i> Pain in back and loins.</p> <p><i>b.</i> Pressure on bladder or rectum.</p> <p><i>c.</i> Painful and sometimes profuse menstruation.</p> <p><i>d.</i> Difficulty of locomotion.</p> <p><i>e.</i> Nervous disorders.</p> <p><i>f.</i> Pain during sexual intercourse.</p> <p><i>g.</i> Dyspepsia, headache, general lassitude, and debility.</p>	
2. Touch.	<p><i>a.</i> Vagina hot and dry, unless from co existing endometritis there be purulent discharge.</p> <p><i>b.</i> Organ low in pelvis, os enlarged, cervix swollen, pressure on cervix very painful.</p> <p><i>c.</i> Painful tenderness most apparent upon rectal touch and conjoined manipulation.</p>	<p><i>a.</i> Enlargement.</p> <p><i>b.</i> Tenderness.</p>	<p><i>a.</i> Uterus low down.</p> <p><i>b.</i> Cervix large, swollen, and painful, and os may admit finger.</p> <p><i>c.</i> Usually tenderness.</p>	
3. Speculum.	<i>a.</i> Usually produces too much pain to be used.	Nothing revealed specially.		Confirms signs evinced by touch.
4. Probe.	<i>a.</i> Produces intolerable pain, and cannot usually be resorted to.	<i>a.</i> Usually reveals some flexion or version, tenderness.		Reveals great sensitiveness before reaching os internum, but nothing beyond that.

*Inflammation of the Uterus.<sup>1</sup>*

3. ENDOMETRITIS.		4. ENDOCERVICITIS.	
Acute.	Chronic.	Acute.	Chronic.
See Acute Endo- cervi- citis.	<p>a. Leucorrhœa streaked, glairy, and bloody.</p> <p>b. Menstrual disorders.</p> <p>c. Pain in back, groins, and hypogastrium.</p> <p>d. Nervous disorders.</p> <p>e. Tympanitis.</p> <p>f. Symptoms of pregnancy.</p> <p>g. Sterility.</p>	<p>a. Dragging weight and pain in pelvis, pain in back, groin, and thighs.</p> <p>b. Rectal and vesical tenesmus.</p> <p>c. Purulent discharge sometimes bloody after 3 or 4 days.</p> <p>d. Tympanitis and tender abdomen.</p>	<p>a. Dragging sensation in the pelvis.</p> <p>b. Pain in back and loins increased by exercise.</p> <p>c. Profuse, irritating leucorrhœa, like boiled starch.</p> <p>d. Menses too scanty or <i>vice versa</i>, too frequent or <i>vice versa</i>.</p> <p>e. Nervous, irascible, moody, or even hysterical.</p> <p>f. Digestion impaired, ultimately spanœmia, sometimes nausea, etc.</p>
	<p>a. Conjoined manipulation reveals tenderness of fundus.</p>	<p>a. Vagina hot and dry, or covered with above discharge.</p> <p>b. Os gaping, cervix swollen and tender, body slightly enlarged, whole organ lower in pelvis than normal.</p>	<p>a. Os in normal position, may be enlarged, lips puffy, or may be roughened.</p> <p>b. Pain results from placing the finger under the cervix and pressing upwards.</p>
	<p>a. Reveals nothing special.</p>	<p>a. Cervix puffy, swollen, and red, fluid exuding from os either clear, albuminous.</p> <p>b. Cervix not usually enlarged, mucopus, or stringy, and tenacious.</p>	<p>a. Long, stringy, tough, tenacious mucus, difficult to remove, exuding from os.</p> <p>b. Cervix not usually enlarged, may be puffy and swollen and very red, as if ulcerated, due to removal of investing epithelium.</p>
	<p>a. Patulous os internum.</p> <p>b. Uterine cavity prolonged.</p> <p>c. Tenderness. Withdrawal followed by blood.</p>	<p>a. Great tenderness throughout whole organ, and removal followed by a few drops of blood.</p>	<p>a. Meets with obstruction at os internum.</p> <p>b. Does not produce pain by striking against the walls of the fundus, nor is its removal followed by blood or mucus.</p>

<sup>1</sup> Prof. J. H. Etheridge, M D., *loc. cit.*

## OBSTETRIC MEMORANDA.

Under this head may be mentioned several items of practical interest to the obstetrician, such as the method of calculating the date of labor, the various presentations and positions, and the measurements of the pelvis and foetal head.

### Calculation of the Date of Labor.

The following carefully-prepared table is a valuable aid to the obstetrician in fixing an approximate date for the termination of pregnancy. The duration of human pregnancy is about 275 days. As labor occurs in the larger proportion of cases between 270 and 290 days from the last menstruation, it is usual to reckon either from the first or last day of this period, taking as the mean 280 days, or a little over nine calendar months. For this approximate calculation, the first day of the menstrual period may be used as being more readily ascertained. The table presents at a glance the beginning and end of 280 days for every day of the year. Find the date of menstruation in the upper line of the horizontal row, and the figure below, with the corresponding month, will indicate 280 days. In leap year, if the period of pregnancy includes February, the time for labor will be one day earlier than that given in the table.<sup>1</sup>

<sup>1</sup> This table, with explanatory remarks, was prepared by W. W. Ely, M.D., of Rochester, N. Y., for the Medical Register of New York, New Jersey, and Connecticut, Dr. A. E. M. Purdy, Editor, N. Y. 1876.

*The Duration of Pregnancy.*

Jan.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Nov.	
Oct.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7		
Feb.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28					
Nov.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5					
March	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Dec.	
Dec.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5		
Jan.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
April.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
Feb.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4				
March.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	April.	
June.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
March	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7		
July.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
April.	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7		
Aug.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	May.	
May	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7		
Sept.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
June.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7		
July.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
Aug.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7		
Sept.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Aug.	
Oct.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
July	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7		
Aug.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Aug.	
Nov.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
Aug.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7		
Dec.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Dec.	
Sept.	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	

### Diameters of the Female Pelvis.

The diameters of the pelvis may be stated as follows:<sup>1</sup>—

*Antero-posterior*, taken *at the brim*, from the upper part of the posterior surface of the symphysis pubis to the centre of the promontory of the sacrum; *in the cavity*, from the centre of the symphysis pubis to a corresponding point in the body of the third piece of the sacrum; and *at the outlet*, from the lower extremities of the symphysis pubis to the tip of the coccyx.

*Oblique*, taken *at the brim*, from the sacro-iliac joint on either side to a point of the brim opposite the ilio-pectineal eminence (that starting from the right sacro-iliac joint being called the right oblique, that from the left the left oblique); *in the cavity*, a similar measurement at the same level as the conjugate; while *at the outlet*, an oblique diameter is not usually measured.

*Transverse*, taken *at the brim*, from a point midway between the sacro-iliac joint and the ilio-pectineal eminence; *in the cavity*, from corresponding points in the same plane as the conjugate and oblique diameters; and *at the outlet*, from the centre of the inner border of one ischial tuberosity to the other.

The *average measurements* are the following:—

			Antero-posterior.	Oblique.	Transverse.
Brim . . .			4.25 inches.	4.8 inches.	5.2 inches.
Cavity . . .			4.7 "	5.2 "	4.75 "
Outlet . . .			5.0 "	—	4.2 "

<sup>1</sup> The facts here detailed are extracted from the recent work of Dr. W. S. Playfair, of London, on the Science and Practice of Midwifery, Philadelphia, 1876, p. 33, etc,

### Diameters of the Fœtal Skull.

These are measured from corresponding points opposite each other, and may be briefly stated as follows:—

*Occipito-mental*, from the occipital protuberance to the point of the chin, 5.25" to 5.50".

*Occipito-frontal*, from the occiput to the centre of the forehead, 4.50" to 5".

*Sub-occipito-bregmatic*, from a point midway between the occipital protuberance and the margin of the foramen magnum to the centre of the anterior fontanelle, 3.25".

*Cervico-bregmatic*, from the anterior margin of the foramen magnum to the centre of the anterior fontanelle, 3.75".

*Transverse* or *bi-parietal*, between the parietal protuberances, 3.75" to 4."

*Bi-temporal*, between the ears, 3.50".

*Fronto-mental*, from the apex of the forehead to the chin, 3.25".

### Presentations and Positions of the Fœtus.

**HEAD PRESENTATIONS.**—The *positions* of the fœtal head after it has entered the brim, are—

*First*, or *left occipito-cotyloid*. The occiput points to the left foramen ovale, the sinciput to the right sacro-iliac synchondrosis, and the long diameter of the head lies in the right oblique diameter of the pelvis.

*Second*, or *right occipito-cotyloid*. The occiput points to the right foramen ovale, the forehead to the left sacro-iliac synchondrosis, and the long diameter of the head lies in the left oblique diameter of the pelvis.

*Third*, or *right occipito-sacro-iliac*. The occiput points to the right sacro-iliac synchondrosis, the forehead to the



left foramen ovale, and the long diameter of the head lies in the right oblique diameter of the pelvis. (This position is the reverse of the first.)

*Fourth, or left occipito-sacro-iliac.* The occiput points to the left sacro-iliac synchondrosis, the forehead to the right foramen ovale, and the long diameter of the head lies in the left oblique diameter of the pelvis. (This position is the reverse of the second.)

**PELVIC PRESENTATIONS.**—The *positions* of breech presentations may be divided as follows:—

*First, or left sacro-anterior* (corresponding to the first position of the vertex). The sacrum of the child points to the left foramen ovale of the mother.

*Second, or right sacro-anterior* (corresponding to the second vertex position). The sacrum of the child points to the right foramen ovale of the mother.

*Third, or right sacro-posterior* (corresponding to the third vertex position). The sacrum of the child points to the right sacro-iliac synchondrosis of the mother.

*Fourth, or left sacro-posterior* (corresponding to the fourth vertex position). The sacrum of the child points to the left sacro-iliac synchondrosis of the mother.

**FACE PRESENTATIONS.**—The *positions*, classified according to the part of the pelvis to which the chin points, may be stated as follows:—

*First.* The chin points to the right sacro iliac synchondrosis, the forehead to the left foramen ovale, the long diameter of the face lies in the right oblique diameter of the pelvis. (This corresponds to the first vertex position.)

*Second.* The chin points to the left sacro-iliac synchondrosis, the forehead to the right foramen ovale, and the long diameter of the face lies in the left oblique diameter

of the pelvis. (This is the conversion of the second vertex position.)

*Third.* The forehead points to the right sacro-iliac synchondrosis, the chin to the left foramen ovale, and the long diameter of the face lies in the right oblique diameter of the pelvis. (This is the conversion of the third vertex position.)

*Fourth.* The forehead points to the left sacro-iliac synchondrosis, the chin to the right foramen ovale, and the long diameter of the face lies in the left oblique diameter of the pelvis. (This is the conversion of the fourth vertex position.)

**SHOULDER PRESENTATIONS.**—These include two divisions, those in which the back of the child looks to the abdomen of the mother, and those in which the back of the child is turned towards the spine of the mother. Each of these is subdivided into two classes, according as the head of the child is placed in the right or left iliac fossa. In dorso-anterior positions, if the head lie in the left iliac fossa, the right shoulder of the child presents; if in the right iliac fossa, the left. In dorso-posterior positions, if the head lie in the left iliac fossa, the left shoulder presents; if in the right, the right.

## BRIEF RULES FOR CLINICAL EXAMINATION OF THE URINE.

The following rules for the examination of a specimen of urine will be found of value to the practitioner as a guide to the proper method of investigating the abnormal conditions of that fluid.<sup>1</sup>

1. *Color*.—Whether pale from being dilute, dark from being concentrated, dark or greenish from presence of bile, smoky from blood.

2. *Smell*.—Fragrant from the existence of cystin, or sugar, etc., or fetid from alkalinity.

3. *Quantity passed* in twenty-four hours, to be measured; observe whether there is excess or diminution.

4. *Specific Gravity*.—Take the specific gravity, if possible, of the mixed urine. Normal sp. gr. 1020. If high, suspect sugar; if low, suspect albumen.

5. *Reaction*.—If acid, is it normally so or not? If excessively acid, examine for crystals of uric acid. If alkaline, ascertain whether the alkali is fixed or volatile.

6. *Heat*.—Heat a portion in a test-tube. If a precipitate appear, it may be albumen or phosphates. Add a drop or two of nitric or hydrochloric acid. If precipitate dissolve, *phosphates*; if not, *albumen*. If a deposit disappear on heating, we have *urates*. If it do not disappear, add a drop of nitric acid. If now dissolved, we have *phosphates*; if not, *cystin*.

7. *Bile*.—Test for bile pigment and bile acids, if necessary.

<sup>1</sup> Arranged and condensed from J. Hughes Bennett's *Text-Book of Physiology*, pp. 478–485; Philadelphia, 1873.

8. *Sugar*.—Test for sugar, if necessary.

9. *Chlorides*.—Add a drop of nitric acid, and then nitrate of silver, *until a precipitate ceases to form*. Thus estimate the average of *chlorides*.

*Microscope*.—Examine for blood, pus, cystin, oxalate of lime, leucin, tyrosin, tube-casts, etc.

### Mode of Detection of Abnormal Constituents of the Urine.

The abnormal constituents of the urine are the following: albumen, bile acids and pigment, acetic, lactic, and butyric acids, fat, sugar, kiestein, leucin, tyrosin, allantoin, sulphuretted hydrogen.

ALBUMEN.—1. *Heat*.—If the urine be alkaline to test-paper, or neutral, add a few drops of acetic or nitric acid; if very acid, neutralize with a little dilute ammonia. Boil a small quantity in a test-tube. If albumen be present, urine becomes turbid if the heat exceeds 154° Fahr.; if albumen abundant, distinct coagulation occurs. If the urine before examination is too acid or too alkaline, coagulation will be prevented by the union of the albumen with the acid or the alkali respectively. In some varieties of urine, boiling produces a precipitate of earthy phosphates, which dissolve on the addition of a little dilute nitric acid.

2. *Nitric Acid*.—This acid produces white turbidity when albumen is present in small quantity; distinct coagulation, if in large quantity. If soluble nitrate of albumen is formed, no coagulation occurs; if nitrate of urea be precipitated, the microscope will detect it. If the patient has been taking copaiva, cubebs, or other oleaginous or oleo-resinous medicines, the urine may be turbid, but the turbidity does not sink, but remains for hours suspended in the fluid.

It is better to employ both heat and nitric acid than either alone.

3. *Ferrocyanide of Potassium*.—Add to a well-filtered urine, acidulated with acetic acid, a weak solution of the ferrocyanide (gr. v to f3j); a white precipitate occurs, but if there is much mucus in the urine, the test is not serviceable.

SUGAR.—Sugar in excess in the urine is grape sugar, often termed diabetic sugar. The urine in diabetes is usually light-colored, froths readily when poured from vessel to vessel, and has a high specific gravity. To obtain the sugar, evaporate the urine to syrupy consistence, and allow the sugar to crystallize out. Separate from it the urea and extractive matters by absolute alcohol, and add to the residue spirits of wine to dissolve the sugar, which is allowed to separate, and the crystalline masses are then purified from alcohol by repeated re-crystallizations from water.

The tests for sugar in the urine are the following:—

1. *Moore's Test with Caustic Potash*.—Add to the urine an equal bulk of solution of caustic potash, and boil. If sugar be present, a dark sherry color will be obtained; if in large quantity, a dark purple, sometimes almost black. The caustic potash, unless freshly prepared, may be contaminated with lead of glass bottle, producing a sulphide of lead when added to urine.

2. *Trommer's Test with Sulphate of Copper and Caustic Potash*.—This test depends on the fact that diabetic sugar has the property of reducing cupric to cuprous oxide; but an excess of urates or the protein compounds occasionally present in urine unfortunately have the same property. We may be sure that diabetic sugar is present if cupric oxide be thus reduced *in the cold*. The process is to add to the urine a few drops of solution of sulphate

of copper; to this add a little caustic potash. A greenish-blue precipitate of hydrated cupric oxide results, which is dissolved in an excess of the caustic potash, forming a blue liquid. Heat this by applying the flame of a lamp to the upper stratum; if sugar be present, a yellow, or orange, or red precipitate of cuprous oxide will be formed, in marked contrast to the blue liquid at the bottom of the test-tube.

3. *Fehling's Test with Potassio-cupric Tartrate.*—This compound is made by dissolving 34.65 grammes of pure crystallized sulphate of copper in about 160 grammes of water. This solution is gradually poured into a solution of 173 grammes of pure crystallized double tartrate of potash and soda, treated with from 600 to 700 grammes of caustic potash of 1.12 sp. gr. The clear mixture is then diluted up to a litre. When a few drops of this potassio-cupric tartrate solution are added to the urine, and the upper stratum boiled, the cupric oxide in the alkaline tartrate is reduced to the cuprous oxide, if sugar be present, as in Trommer's test. Ten cubic centimetres of the alkaline solution are reduced by exactly 0.05 gramme of diabetic sugar. Fehling's solution is, however, liable to decomposition, even if kept for only a week, and sometimes gives uncertain results.

4. *Böttcher's Test with Nitrate of Bismuth.*—Add to the urine an equal volume of a solution of one part of crystallized carbonate of soda to three parts of water, and afterwards a little trisnitrate of bismuth, and boil. If sugar be present, the white powder will become dark, the oxide of bismuth being reduced by the sugar. Any albumen in the urine should first be got rid of by boiling and filtration, otherwise the sulphur of the albumen may form the black sulphide of bismuth.

5. *Dichloride of Tin Test.*—Moisten a few strips of me-

rino in a solution of stannous chloride, and dry in a water-bath. On moistening one of these strips with diabetic urine, and holding it near the fire, a brownish-black color results.

6. *Fermentation Test*.—Ordinary yeast is mixed with water, and a long test-tube filled with the suspected urine, to which some of the yeast has been added. Invert the tube over a saucer containing the urine under examination, so that no air may enter, and set the whole aside in a warm place. Sugar, if present, will be decomposed into carbonic acid and alcohol, and the gas will collect in the upper part of the tube. Or the carbonic acid may be conducted off by a fine tube into lime-water, which becomes turbid from the formation of insoluble carbonate of lime.

BILE.—Urine containing bile has a peculiar greenish-black color.

The tests are the following:—

1. *Noel's Test*.—Immerse a strip of blotting paper for a few minutes in the fluid, dry, and add a drop of nitric acid containing a little nitrous acid. If bile be present, a violet color results, changing to red or yellow.

2. *Pettenkofer's Test for Bile Acids*.—Add to the liquid, in a test-tube, a little powdered white sugar, or its equivalent of syrup. Then pour in of strong sulphuric acid (very gradually) rather more than half the bulk of the liquid. The temperature is thus gradually raised to the proper point, and a deep purplish-crimson color appears. This test frequently fails in the examination of the urine.

3. *Nitric Acid Test*.—Place a drop of the fluid on a white porcelain plate, add carefully a drop or two of strong nitric acid, and at the point of contact of the fluid with the acid there will be a play of colors, passing from red to green, pink, blue, violet, and yellow. The green

tinge, though often evanescent, indicates the presence of bile.

4. *Oxide of Silver Test*.—Boil the fluid with an ammoniacal solution of silver oxide. Acidulate the filtrate with a few drops of hydrochloric acid. If biliverdin be present, a purple color will be produced, owing to the formation of an artificial compound, bilipurpin.

5. *Maréchal's Test*.—This is employed as follows: Place about 3j of the urine in a test-tube, and allow one or two drops of tincture of iodine to trickle down the side of the tube, held nearly horizontally, so that the two fluids may touch, but not mix. If bile pigment be present, a fine green color will almost immediately be developed below the red iodine layer. By holding the test-tube up against a white cloud, or a white surface, in a good light, the three zones of color will be distinctly visible.<sup>1</sup>

LACTIC ACID.—This acid is rarely present in the urine, but may be detected by evaporating fresh urine nearly to dryness, and treating the residue with a solution of oxalic acid in alcohol. Oxalates are precipitated; lactic acid remains in solution, which is digested with litharge, evaporated to dryness, and an alcoholic solution of lactate of lead obtained, which is decomposed by sulphuretted hydrogen, the sulphide of lead filtered off, and the fluid evaporated to a syrup. The syrup is then shaken up with ether, the ethereal solution evaporated, and the lactic acid dissolved in water. The aqueous solution is then boiled with zinc oxide, and the crystals of lactate of zinc are allowed to separate.

Of the other abnormal constituents, FAT, in the form of oil globules, usually associated with fatty casts, may indicate an advanced condition of Bright's disease.—

<sup>1</sup> Dr. W. G. Smith, *Dub. Journ. Med. Science*, Dec. 1876, in *Amer. Journ. Med. Sciences*, April, 1877, 531.



CHYLE gives a white appearance to the urine, from the abundance of fatty molecules it contains; albumen is sometimes present when it coagulates on cooling. Possibly there may be abnormal communication between the lacteal system and the ureters or kidneys.—KIESTEIN, a granular albuminous matter, occurs in the urine of pregnant women, forming with crystals of triple phosphate and fat globules a fat-like scum on the surface.—ACETIC and BUTYRIC ACIDS are found only in decomposing urine, and are not important.—SULPHURETTED HYDROGEN is rarely found in urine, but may be detected by blackening a piece of paper dipped in a solution of acetate of lead and held over it.—ALLANTOIN is only a temporary and occasional constituent, in young children especially.—LEUCIN occurs in hepatic cases, and is detected by microscopic examination. It is usually seen in roundish yellowish-colored balls, made up of masses of small needle-like crystals.—TYROSIN occurs under similar conditions, and is similarly detected, consisting of stellate groups of long silky needles, not in balls or colored, as with leucin.

#### Examination of the Sediments of Urine.

Urinary deposits may be divided into three classes: 1. Those which occur in acid or alkaline urine, namely, uric acid, urates, phosphates, oxalates, and cystin. 2. In alkaline urine only, namely, the ammoniaco-magnesian, or triple phosphate, phosphate of lime, and urate of ammonia. 3. Organized deposits, namely, mucus, blood, pus, tube casts, spermatozoids, torulæ, sarcinæ, bacteria, vibrios, etc.

##### *I. Deposits found occasionally in Acid or Alkaline Urine, usually in the former.*

URIC ACID.—Yellow, reddish, or brown sediment; little masses of crystals, assuming various forms, as lozenge-

shaped rhombs, rectangular tables or prisms, dumb-bell and spindle or barrel-shaped crystals.

*Urates.*—These appear when the urine is cold, if the salts are present in excess, the urates being much more soluble in hot water than in cold. Consequently every deposit which disappears on heating consists of urates. They usually form a heavy precipitate at the bottom of the glass, with an ill-defined upper border; and are white or deeply tinted by the coloring matter of the urine. They have been termed “lateritious deposit,” “brick-dust deposit,” “critical deposit,” and “purpurates.”

*Urate of soda* is amorphous in urine, but prepared artificially by acting with uric acid on sodium phosphate, it forms acicular crystals.

*Urate of ammonia* appears as an amorphous granular sediment, or in the form of brown round balls covered with spines.

*Urate of lime* is a white amorphous powder, of rare occurrence.

**PHOSPHATES.**—In acid urine they appear as a cloudy precipitate, at once soluble in a drop of nitric or hydrochloric acids.

**OXALATE OF LIME** may be detected by its characteristic octahedral or dumb-bell crystals. It is not a distinct sediment, but exists as isolated crystals entangled in the mucous cloud with which it is usually associated.

**CYSTIN.**—This occasionally exists as a sediment mixed with amorphous urates. Under the microscope it is seen in transparent, colorless, six-sided plates. If it occurs in large quantity along with urates or phosphates, or both, it may be distinguished from them by heating and adding acetic acid; the heating dissolving the urates, and the acid the phosphates, but neither have any effect on the cystin.

## II. *Deposits found occasionally in Alkaline Urine only.*

When, from any cause urine becomes alkaline, from the decomposition of urea into carbonate of ammonia, the earthy phosphates (of lime and magnesia), which are soluble only in a slightly acid fluid, are at once thrown down; the phosphate of lime remains unchanged, but the ammonia unites with the phosphate of magnesia and forms a precipitate of ammoniaco-phosphate of magnesia, or triple phosphate.<sup>1</sup>

The deposits of this class are all dissolved on adding a few drops of nitric or hydrochloric acid.

**AMMONIACO-MAGNESIAN, OR TRIPLE PHOSPHATE.**—It usually occurs in six-sided crystals, some elongated, others nearly square, some with sharp angles, others with broad facets. In very alkaline urine, they appear as feathery crystals.

**PHOSPHATE OF LIME.**—Usually an amorphous white powder; occasionally, aggregated into rosette-like crystals.

**URATE OF AMMONIA and URATE OF LIME,** already referred to, may also be present; the former always in alkaline, rarely in acid urine; the latter occasionally in alkaline urine.

## III. *Organized Deposits.*

**MUCUS.**—The cloudy transparent flocculi seen in urine, when left at rest, consist of mucus entangling various forms of epithelial cells, derived from the urinary passages. The supernatant liquid being carefully poured off, and acetic acid added to the mucus, it coagulates, forming delicate molecular fibres.

<sup>1</sup> Neubauer and Vogel. *Guide to Qualitative and Quantitative Analysis of the Urine.* (New Sydenham Society's Publications.) 4th ed., p. 56.

**BLOOD.**—Urine containing blood has a peculiar smoky color, and always contains a trace of albumen. Under the microscope, the blood-corpuscles are usually colorless, have lost their biconcave form, and are globular from imbibition of water.

**PUS.**—If there be a thickish yellow deposit at the bottom of the vessel, of a stringy consistence, it usually consists of mucus containing pus. The supernatant fluid being poured off, an equal bulk of caustic potash is added to the deposit, which at once gelatinizes, becoming so thick and tough that it cannot be poured from the test-tube. When pus is present in small quantity, pus-corpuscles can readily be detected by the microscope.

**TUBE CASTS.**—These are either: 1. Fibrinous casts, often containing blood-disks. 2. Desquamative casts, containing epithelial casts. 3. Granular or fatty casts, containing numerous oil-globules, free, or in the epithelial cells. 4. Hyaline or waxy casts, solid and transparent, or containing epithelial cells, granules, and free nuclei. These bodies may be detected by allowing any sediment to fall to the bottom of a conical glass, removing a small portion of it with a fine pipette, placing a drop on a slide, covering it with a thin glass, and examining it with a power of 250 diam. linear.

**SPERMATZOIDS, TORULÆ, SARCINÆ, BACTERIA, VIBRIONES, ETC.,** occasionally found in urine, may be readily detected by their characteristic microscopical appearance.

## POISONS, THEIR NATURE AND TREATMENT.

A condensed table of poisons, presenting, at a glance, the prominent symptoms and the most available remedies or antidotes, is sure to prove, sooner or later, of practical and immediate utility. After all, the general principles of treatment only can be indicated in such an outline portrait of the effects of toxic agents; the details must be left to the intelligence, aptness, and presence of mind of the practitioner. Whenever it may be possible to apply a direct chemical antidote, no time should be lost in its speedy employment. Of late years the antagonizing physiological action of various powerful remedies has also been invoked in cases of poisoning, and in a number of medical journals favorable results have been reported, where reliance had been successfully placed in this class of physiological opposites. Thus atropia, which dilates the pupil, has in a toxical overdose been combated by morphia, which contracts it; and a small dose of atropia administered hypodermically, say  $\frac{1}{80}$  to  $\frac{1}{30}$  of a grain, until its characteristic effects are induced, is a physiological antidote to physostigmia, the active principle of Calabar bean. Watchful care must be taken, however, so far as quantity is concerned, lest in substituting one intensely potent agent for another the character of the poison may alone be changed, and the patient be left in equal peril. In cases in which no such chemical or physiological antidotal power is available, general principles of treatment must guide the practitioner in the employment of emetics, counter-irritants, etc.

The following classification, modified from that of

Taylor,<sup>1</sup> is based on the *modus operandi* of poisons on the human system in its normal or healthy state:—

*Classification of Poisons.*

CASE I.	{	Order 1. Irritants proper.	{	Mineral {	Non-metallic.
Irritants.		Order 2. Irritants producing remote specific effects.		Vegetable.	Metallic.
				Animal.	
CLASS II.	{	Order 1. Cerebral.	{	Narcotics. <sup>2</sup>	
		Order 2. Spinal, or Tetanics. <sup>4</sup>		Anæsthetics. <sup>3</sup>	
Neurotics.			Order 3. Cerebro-spinal.	{	Deliriants. <sup>5</sup>
				Depressants. <sup>6</sup>	
				Asthenics. <sup>7</sup>	

By way of illustration, the following explanation may be made:—

*Irritants* exert their action on the mucous membrane of the alimentary canal. They cause great pain in the abdomen, acrid and burning taste on swallowing, nausea, vomiting, purging, cramps, and sometimes bloody evacuations. Some irritants are corrosive, and act immediately. Death may ensue from collapse, from convulsions, from intense inflammation, or stricture of the œsophagus. The symptoms of irritant poisoning are not unlike those attendant on some of the diseases of the gastro-intestinal apparatus, as colic, gastritis, enteritis, cholera, etc.

*Neurotics* act specially on the cerebro-spinal system, producing drowsiness, headache, giddiness, coma, delirium, and occasionally convulsions, and at times an irritant action on the alimentary canal. The subdivision into *spinal*, *cerebral*, and *cerebro-spinal neurotics* indicates

<sup>1</sup> Manual of Toxicology, by Dr. John J. Reese ; Phila., 1874.

<sup>2</sup> As opium and alcohol.    <sup>3</sup> As ether, chloroform, and alcohol.

<sup>4</sup> As *nux vomica*, *strychnia*, *brucia*, etc.

<sup>5</sup> As *belladonna*, *stramonium*, *hyoscyamus*, *solanum*.

<sup>6</sup> As *confium*, tobacco, *lobelia*, *aconite*, Calabar bean.

<sup>7</sup> As hydrocyanic acid, oil of bitter almonds, *digitalis*, *cocculus indicus*, etc.

the mode of action of each. Self-evident also is the method of subdivision of the latter into *delirians*, *depressants*, and *asthenics*, the latter producing death by shock. The symptoms may resemble those of apoplexy, epilepsy, and uræmic poisoning, or insidious cerebro-spinal diseases, which at times burst unexpectedly and with full force on the patient.

### *The Treatment of Poisoning.*

The treatment of poisoning is briefly and concisely detailed in the following statement, prepared for the ready reference of the practitioner. The list of articles is arranged alphabetically for convenience, the class to which each belongs being mentioned. He should, in the absence of any information as to specific chemical or physiological antidote or remedy, treat the case on general principles; in other words, evacuate the stomach by emetics or the stomach pump; resort to the use of cathartics, if they seem to be indicated, stimulants, diluents, oleaginous substances, external friction, artificial respiration, etc., according to the urgency of the symptoms.

A *General Antidote for Poisons* has been suggested by Jeannel for use in poisoning by various powerful agents, as arsenic, zinc, digitaline, etc., the preparations of which are rendered completely insoluble by it:—

Solution of sulphate of iron (sp. gr. 1.45),  $2\frac{1}{2}$  oz.

Water, 20 oz.

Calcined magnesia, 2 oz.

Washed animal charcoal, 1 oz.

The ingredients are kept separate, the solution of the sulphate in one vessel, the magnesia and charcoal in another, with some water. When needed for use, the solution of the sulphate is poured into the other vessel, and violently agitated. The mixture should be administered in doses of from one and a half ounces to three ounces.

Poison.	Class.	Treatment.
Acetic acid.	Irritant.	Free vomiting, followed by exhibition of alkaline carbonates, chalk, or magnesia.
Aconite (and Aconitia).	Cerebro-spinal neurotic.	Active emetics or stomach-pump. Stimulation externally and internally. Finely-powdered animal charcoal, or tannin and astringent infusions. Digitalis said to be a physiological antidote.
Alcohol.	Cerebral neurotic.	Stomach-pump; cold affusion; inhalation of vapor of ammonia; use of electro-magnetic apparatus.
Aloes.	Irritant.	General treatment for irritant poisons.
Aluminium and potassium, sulphate of.	Irritant.	See Potassa.
Ammonia, salts of.	Irritant.	Mild vegetable acids, as dilute vinegar or lemon-juice; olive oil; milk may be given copiously; stomach-pump should not be used.
Ammonia, vapor of.	Irritant.	Inhalation of vapor of acetic acid.
Amylene.	Cerebral neurotic.	Same treatment as for chloroform poisoning.
Antimony and its preparations.	Irritant.	Free vomiting with warm mucilaginous drinks, or stomach-pump. The proper antidote is tannin, as in tincture or infusion of cinchona, infusion of green tea, or of galls. Opium, and internal and external stimulation, may be employed subsequently.
Arsenic, preparations of.	Irritant.	See Arsenious acid.
Arsenious acid.	Irritant.	In the absence of vomiting prompt emesis by sulphate of zinc or warm mustard and water. Warm demulcent drinks. Antidote: Hydrated sesquioxide of iron, in a moist state, in tablespoonful doses, followed by castor oil. (The hydrate may be extemporaneously prepared by adding aqua ammoniæ to dilute tinctura ferri chloridi.) Freshly-precipitated hydrate of magnesia has also been employed. Antidote not reliable if the arsenic has been taken in form of powder.
Atropia.	Cerebro-spinal neurotic.	See Belladonna.
Barium, salts of.	Irritant.	Sulphate of soda or of magnesia; emetics or stomach-pump.
Belladonna (and Atropia).	Cerebro-spinal neurotic.	Prompt emetic or stomach-pump. No reliable chemical antidote: tannin and animal charcoal have been employed. Physiological antidote, morphia, which may be administered subcutaneously. Jaborandi has also been suggested.



Poison.	Class.	Treatment.
Bismuth, subnitrate of.	Irritant.	Albumen, milk, sugar, mucilaginous drinks.
Bromine.	Irritant.	General treatment for irritant poisons.
Brucia.	Spinal neurotic.	Same treatment as for poisoning by <i>nux vomica</i> .
Calabar bean (and Physostigmia).	Cerebro-spinal neurotic.	Free emesis. Physiological antidote, atropia, cautiously administered hypodermically.
Camphor.	Irritant.	Emetics, stimulants, wine, opium.
Cantharides.	Irritant.	Free emesis to be encouraged with warm demulcent drinks; castor oil; demulcent injections.
Carbolic acid.	Irritant.	Early use of the stomach-pump. Olive oil; saturated solution of saccharate of lime has been recommended as an antidote.
Chloral.	Cerebral neurotic.	Stomach-pump; stomach well washed out with tea or coffee. General treatment same as for opium poisoning, or poisoning by chloroform vapor.
Chloroform.	Cerebral neurotic.	In poisoning by liquid chloroform, stomach-pump and emetics. General treatment of poisoning by the vapor same as that hereafter mentioned for ether. Reverse the patient, as recommended by Nélaton.
Chromium, compounds of.	Irritant.	Emetics; carbonates of magnesia or chalk in milk, albumen, or water.
Citric acid.	Irritant.	Free vomiting, followed by exhibition of alkaline carbonates, chalk, or magnesia.
Cocculus Indicus.	Cerebro-spinal neurotic.	Emetics, mucilaginous drinks, stimulants.
Colchicum.	Irritant.	Prompt emesis, castor oil, demulcents, opium, and stimulants.
Conium (and Conia).	Cerebro-spinal neurotic.	Prompt emesis by mustard and water. Active stimulation, externally and internally.
Copper, preparations of.	Irritant.	Free vomiting should be aided by warm mucilaginous drinks, stomach-pump if necessary. Antidote, white of eggs, freely administered, forming insoluble albuminate; or milk, forming insoluble caseate of copper.
Corrosive sublimate.	Irritant.	Free vomiting aided by warm, diluent drinks; stomach-pump may produce perforation. Antidote, white of eggs, mixed with water and given copiously, forming insoluble compound; white of one egg neutralizes four grains of corrosive sublimate. Gluten, or wheat flour paste, or milk, also employed.

Poison.	Class.	Treatment.
Creasote.	Irritant.	Emetics or stomach-pump; demulcent and mucilaginous drinks.
Croton oil.	Irritant.	Same general treatment as for other irritant poisons, to counteract excessive vomiting and purging. Opium, stimulants, etc.
Curara.	Spinal neurotic.	Same general treatment as that mentioned for poisoning by nux vomica.
Datura.	Cerebro-spinal neurotic.	See Stramonium.
Digitalis (and Digitaline).	Cerebro-spinal neurotic.	Free use of emetics; vegetable infusions containing tannic acid render the active principle insoluble.
Elaterium.	Irritant.	General treatment for irritant poisons.
Ether, vapor of.	Cerebral neurotic.	Withdraw the cause; cold affusion; exposure to current of air; artificial respiration.
Gelsemium.	Irritant.	General treatment for irritant poisons.
Gold, preparations of.	Irritant.	Sulphate of iron; mucilaginous drinks.
Hydrochloric acid.	Irritant.	See Muriatic acid.
Hydrocyanic acid.	Cerebro-spinal neurotic.	Being rapidly fatal, treatment must be instantaneous. Cold affusion; cautious inhalation of ammonia and chlorine vapors; stimulation externally and internally. Mixture of proto-sulphate and sesquisulphate of iron, followed by solution of carbonate of potassium, to produce insoluble Prussian blue, has been proposed as a chemical antidote.
Hyoscyamus (and Hyoscyamia).	Cerebro-spinal neurotic.	Same general treatment as for poisoning by belladonna.
Iodine.	Irritant.	Starch or flour in water.
Iron, chloride and sulphate of.	Irritant.	Magnesia, copious diluent drinks.
Lead, acetate, subacetate, and carbonate of.	Irritant.	Sulphate of zinc, producing free emesis, and forming insoluble sulphate of lead. Milk and white of egg, given copiously, form insoluble compounds. Solutions of sulphate of magnesia or of soda, freely administered, act as antidotes and cathartics; or castor oil.
Lobelia.	Cerebro-spinal neurotic.	Emetics, purgatives, stimulants.
Mercury and its preparations.	Irritant.	See Corrosive sublimate.
Methylene, bichloride of.	Cerebral neurotic.	Same treatment as for poisoning by chloroform vapor.

Poison.	Class.	Treatment.
Morphia.	Cerebral neurotic.	See Opium.
Muriatic or hydrochloric acid.	Irritant.	Solution of alkaline carbonates in water or milk; magnesia or chalk suspended in milk; soapsuds; scrapings from whitewashed walls (in the absence of other articles), oily emulsions, gruel, and milk in large quantities; free use of barley water.
Nicotia.	Cerebro-spinal neurotic.	See Tobacco.
Nitrous oxide.	Cerebral neurotic.	Same general treatment as for poisoning by chloroform vapor.
Nitric acid and Nitro-muriatic acid.	Irritant.	Same treatment as already detailed for poisoning by muriatic acid. Dilute solution of carbonate of sodium, or fluid magnesia, with water, and demulcents may be given.
Nux vomica.	Spinal neurotic.	See Strychnia.
Oil of bitter almonds.	Cerebro-spinal neurotic.	Same treatment as for hydrocyanic acid poisoning.
Opium, and its preparations.	Cerebral neurotic.	Direct emetics, as large doses of sulphate of zinc, repeated if necessary, or mustard and warm water, or stomach-pump. Persevere until no smell of opium remains. For the narcotic effect of the drug, affusion with cold water, walking the patient, arousing him by shaking and shouting; flagellations; afterwards strong coffee. If unsuccessful, electro-magnetism, applied between upper part of spine and chest. Artificial respiration as a last resort. As antidotes, tannic acid and iodated iodide of potassium, not reliable if employed alone. Physiological antidote, solution of atropia or tincture of belladonna.
Oxalic acid.	Irritant.	Avoid the use of alkalis or their carbonates, as they will form poisonous salts with the oxalic acid. Give chalk or magnesia, or its carbonate, suspended in water or milk, forming insoluble and inert earthy oxalates; or saccharated solution of lime. After-treatment, mucilaginous drinks, lime-water, and oil; warmth and stimulants.
Phosphorus.	Irritant.	Free vomiting, with sulphate of copper, especially; albuminous and mucilaginous drinks, in which hydrate of magnesia is suspended. Oil, being a solvent of phosphorus, should be avoided. Old oil of turpentine (containing oxygen), oxygenated water, oxygen inhalations, animal charcoal, have been employed as antidotes. Intravenous injection of oxygen is also recommended. Avoid animal fat in diet.

Poison.	Class.	Treatment.
Physostig- mia.	Cerebro- spinal neurotic.	See Calabar bean.
Potassa, and salts, gene- rally, of po- tassium.	Irritant.	Mild vegetable acids, as dilute vinegar or le- mon-juice; demulcent drinks; olive oil, in large quantities, produces a soap. Milk may be copiously administered. Stomach-pump should not be used.
Potas-ium, bitartrate of.	Irritant.	Same treatment as for the nitrate. Dilute solution of bicarbonate of potassium reduces bitartrate to harmless neutral tartrate.
Potassium, cyanide of.	Cerebro- spinal neurotic.	Weak solution of sulphate of iron converts it into Prussian blue. Treatment similar to that for hydrocyanic acid.
Potassium, iodide of.	Irritant.	General treatment for irritant poisons.
Potassium, nitrate of.	Irritant.	No known antidote; stomach-pump; free vomiting, and copious mucilaginous drinks; stimulants, opium, camphor, etc., if great depression exists.
Potassium and alumi- nium, sul- phate of.	Irritant.	Warm dilute drinks to produce emesis; hydrate of magnesia, or weak solution of carbonate of ammonium; stomach-pump.
Prussic acid.	Cerebro- spinal neurotic.	See Hydrocyanic acid.
Savine.	Irritant.	General treatment for irritant poisons.
Silver, pre- parations of.	Irritant.	Albumen, milk. If nitrate of silver, the chlo- ride of sodium.
Soda, and its prepara- tions.	Irritant.	Same treatment as for poisoning by compounds of potassium.
Stramonium (and Datu- ria).	Cerebro- spinal neurotic.	Same treatment as for poisoning by belladonna. Morphia should be administered subcutane- ously until contraction of the pupils results.
Strychnia.	Spinal neurotic.	Prompt emesis by stomach-pump, or mustard and warm water, or mixture of ipecacuanha and sulphate of zinc. Inhalation of chloroform continuously employed may relieve tetanic rigidity. Bromide of potassium, in very large doses, a physiological antidote. Hydrate of chloral, nitrite of amyl, atropia have also been employed.
Sulphuric acid.	Irritant.	Same treatment as for poisoning by muriatic acid. Solution of carbonate of sodium in milk and water.
Sulphate of indigo.	Irritant.	(Used in dyeing.) Relieved by calcined mag- nesia and milk, or fluid magnesia.
Tartaric acid.	Irritant.	Same treatment as for poisoning by citric acid or oxalic acid.

Poison.	Class.	Treatment.
Tartar emetic.	Irritant.	See Antimony.
Tin, preparations of.	Irritant.	General treatment for irritant poisons.
Tobacco (and Nicotia).	Cerebro-spinal neurotic.	Stomach-pump or emetics ; injections <i>per anum</i> .
Veratrum (and Veratria).	Irritant.	Rapid emesis, stimulants, with laudanum or some other opiate. Tannin has been proposed as an antidote.
Zinc, chloride of.	Irritant.	Free emesis, copious warm mucilaginous drinks, or stomach-pump, albumen given liberally. Opium, if necessary.
Zinc, sulphate of.	Irritant.	Tepid water with milk and albumen ; infusions containing tannic acid. Stomach-pump. Emollient enemata.

There is a number of so-called *vegetable irritants*, such as aloes, scammony, jalap, etc., which may give rise to toxical symptoms. Their effects should be treated on general principles, such as the employment of emetics, diluents, castor oil, opium, fomentations, etc. The same remarks apply also to the various articles of diet, such as fish, meat, etc., which occasionally produce similar effects. *Irritant gases*, as chlorine, nitrous acid or sulphurous acid vapor, etc., may act as poisons, and their effects should be treated by removal of the patient from the causes, cold affusion, etc. The numerous poisonous *fungi*, which may be taken into the stomach, may also produce symptoms, which may require treatment on the previously-mentioned general principles.

*Bites of venomous reptiles* require a special treatment ; the wound may be sucked with impunity ; the limb above this point having a ligature placed around it, or compressed ; the part involved excised or cauterized with the iron, nitric acid, etc. The injection of liquor ammoniæ into the vein has also been advised. Stimulants, as ammonia or brandy, should also be freely given. The greater part of the local treatment here detailed would also be applicable in cases resulting from the *bites of rabid animals*.

## DIRECTIONS FOR RESTORING THE APPARENTLY DROWNED.<sup>1</sup>

The leading principles of the following directions for the restoration of the apparently dead from drowning are founded on those of the late Dr. Marshall Hall, combined with those of Dr. H. R. Silvester, and are the result of extensive inquiries which were made by the Royal National Life-Boat Institution of England, amongst medical men, medical bodies, and coroners throughout the kingdom. These directions have been extensively circulated by the Institution throughout the United Kingdom and in the Colonies. They are also in use in the British navy, in the Coastguard service, and at all the stations of the British army, both at home and abroad.

The actual condition in drowning is due to the same cause as in death by hanging—the non-entrance of air into the lungs. If repeated attempts at breathing be made while the patient is in the water, air will escape from the chest, and water may pass into the air-passages, but this intrusion of water is no necessary condition of drowning. Hence no attempts need be made, as our forefathers taught, to remove the water from the chest, by rolling the body face downwards on a barrel, etc.

The points to be aimed at are—first and *immediately* the RESTORATION OF BREATHING; and, secondly, after breathing is restored, the PROMOTION OF WARMTH AND CIRCULATION.

The efforts to restore breathing must be commenced immediately and energetically, and persevered in for one

<sup>1</sup> Good Health, July, 1869.

or two hours, or until a medical man has pronounced that life is extinct. Efforts to promote warmth and circulation, beyond removing the wet clothes and drying the skin, must not be made until the first appearance of natural breathing; for if circulation of the blood be induced before breathing has recommenced, the restoration to life will be endangered.

Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient *instantly* on the spot, in the open air, with the face downward, whether on shore or afloat, exposing the face, neck, and chest to the wind, except in severe weather, and removing all tight clothing from the neck and chest, especially the braces.

*Cautions.*—Prevent unnecessary crowding of persons around the body, especially if in an apartment. Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured. Under no circumstances hold the body up by the feet. On no account place the body in a warm bath unless under medical direction, and even then it should only be employed as a momentary excitant.

### **To Restore Breathing.**

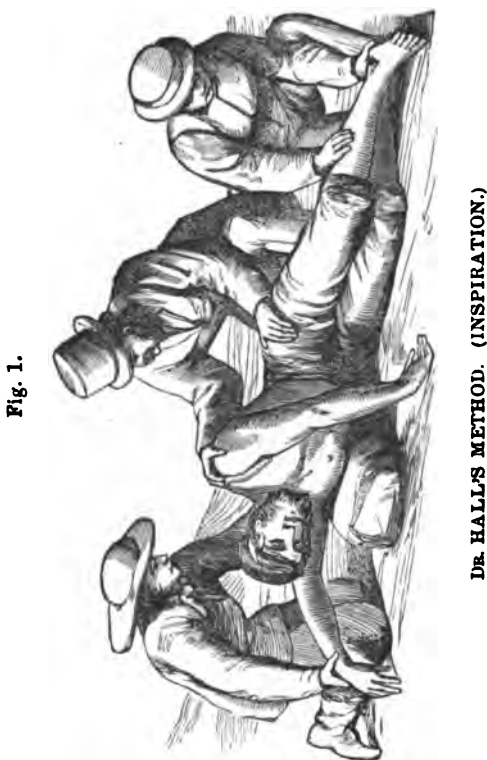
#### *Dr. Marshall Hall's Method.*

*To Clear the Throat.*—Place the patient on the floor or ground with the face downwards, and one of the arms under the forehead, in which position all fluids will more readily escape by the mouth, and the tongue itself will fall forward, leaving the entrance into the windpipe free. Assist this operation by wiping and cleansing the mouth.

If satisfactory breathing commences, use the treatment described below to promote warmth. If there be only

slight breathing, or no breathing, or if the breathing fail, then—

*To Excite Breathing.*—Turn the patient well and instantly on the side, supporting the head, and excite the nostrils with snuff, hartshorn, and smelling salts, or tickle



the throat with a feather, etc., if they are at hand. Rub the chest and face warm, and dash cold water, or cold and hot water alternately on them. If there be no success, lose not a moment, but instantly—



*To Imitate Breathing* (see Figs. 1 and 2).—Replace the patient on the face, raising and supporting the chest well on a folded coat or other article of dress. Turn the body very gently on the side and a little beyond, and then briskly on the face, back again, repeating these measures

Fig. 2.



DR. HALL'S METHOD. (EXPIRATION.)

cautiously, efficiently, and perseveringly, about fifteen times in the minute, or once every four or five seconds, occasionally varying the side. On each occasion that the body is replaced on the face, make uniform but efficient

pressure with brisk movement, on the back between and below the shoulder blades or bones on each side, removing the pressure immediately before turning the body on the side.

By placing the patient on the chest, the weight of the body forces the air out; when turned on the side this pressure is removed, and air enters the chest. *The first measure increases the expiration—the second commences inspiration.* The result is respiration or natural breathing; and, if not too late, restoration to life.

During the whole of the operations let one person attend solely to the movements of the head and of the arm placed under it.

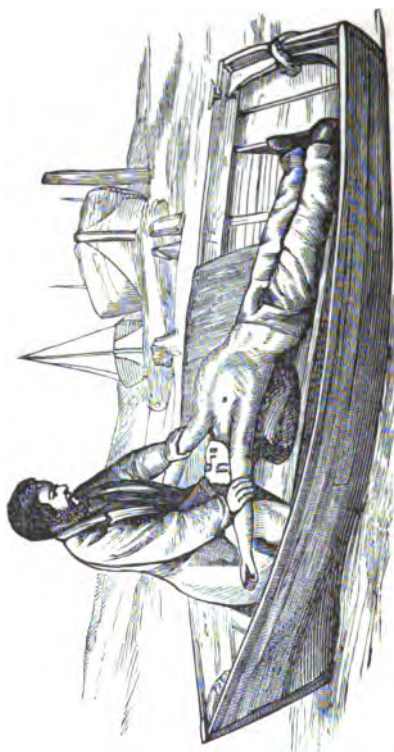
Whilst the above operations are being proceeded with, dry the hands and feet, and as soon as dry clothing or blankets can be procured, strip the body, and cover or gradually reclothe it, but taking care not to interfere with the efforts to restore breathing.

#### *Dr. Silvester's Method.*

Should the efforts just described not prove successful in the course of from two to five minutes, proceed to imitate breathing by Dr. Silvester's method, as follows: Place the patient on the back on a flat surface, inclined a little upwards from the feet; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades. Cleanse the mouth and nostrils, draw forward the patient's tongue, and keep it projecting beyond the lips; an elastic band over the tongue and under the chin will answer this purpose, or a piece of string or tape may be tied around them, or by raising the lower jaw, the teeth may be made to retain the tongue in that position. Remove all tight clothing from about the neck and chest, especially the braces.

*To Imitate the Movements of Breathing.*—Standing at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upwards above the head, and keep them stretched upwards for two seconds. *By this means air is drawn into the lungs.* Then turn down

Fig. 3.

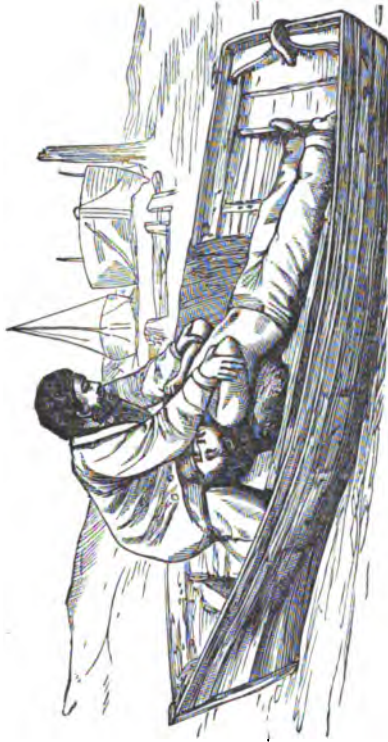


DR. SILVESTER'S METHOD. (INSPIRATION.)

the patient's arms, and press them gently and firmly for two seconds against the sides of the chest. *By this means air is pressed out of the lungs.* (See Figs. 3 and 4.) Repeat these measures alternately, deliberately, and perseveringly, about fifteen times in a minute, until a sponta-

neous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to induce circulation and warmth.

Fig. 4.



DR. SILVESTER'S METHOD. (EXPIRATION)

### **Treatment after Natural Breathing has been Restored.**

#### *To Promote Warmth and Circulation.*

Wrap the patient in dry blankets; commence rubbing the limbs upwards, with firm grasping pressure and energy, using handkerchiefs, flannels, etc. *By this measure the blood is propelled along the veins towards the heart.* The

friction must be continued under the blanket or over the dry clothing. Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, etc., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet. If the patient has been carried to a house after respiration has been restored, be careful to let the air play freely about the room.

On the restoration of life, a teaspoonful of warm water should be given; and then, if the power of swallowing have returned, small quantities of wine, warm brandy and water, or coffee, should be administered. The patient should be kept in bed, and a disposition to sleep encouraged.

The above treatment should be persevered in for some hours, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, persons having been restored after persevering for many hours.

The appearances which generally accompany death are entire cessation of breathing and of the heart's action; the eyelids are generally half closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue approaches to the under edges of the lips, and these, as well as the nostrils, are covered with a frothy mucus; coldness and pallor of surface increase.

## DISINFECTANTS AND THEIR PRACTICAL APPLICATION.

The employment of this class of agents has become so much more general in recent times, that it is deemed desirable and expedient here to embody some of the practical conclusions arrived at by scientific and other authorities on the subject. A knowledge of the means of prevention of the spread of malignant or infectious disease in communities is undoubtedly of greater importance than their cure in individual cases.

### **The Principles of Disinfection.<sup>1</sup>**

*Fresh air and pure water, constant ventilation, warm clothing, good food, and thorough cleansing, are natural means of preventing and destroying the causes of infection and disease. But there may be infected or foul places and things, and there are times of special necessity or sudden danger from the presence of infectious epidemic disease, which require the instant arrest or destruction of the infection and all its removable causes; this is disinfection. The clothing from persons with smallpox, scarlatina, or typhus, and even the air in the sick-rooms of such patients, is infectious; and the sick with typhoid fever or cholera discharge excremental matters which possess infective properties that should be immediately destroyed.*

<sup>1</sup> The valuable recommendations contained in the following pages, many of which are almost inaccessible to the general practitioner through any other channel than that now offered, have been carefully collated from the admirable chapter on the subject in the Annual Report of the Board of Health of New York for 1873, and from other trustworthy sources, with numerous additions by the author.

In this memorandum the words infection and disinfection are employed just as they are understood, as referring to the preventable causes that are concerned in repropagating specific kinds of disease; these causes are:—

1. The specific infectious property or contagious substance of any one of the pestilential disorders.
2. The local impurities and moisture in the house and grounds where the outbreaks of disease have occurred or are liable to occur.
3. The foul exhalations and atmospheric impurities which injure health or help to propagate pestilential epidemics.

Experience has proved that it is possible, by certain chemical agencies (such as are or will be hereafter described), wholly to destroy or prevent the operation of the specific infection or *contagion* of any disease; but to do this, it is necessary that precise rules should be observed in applying the disinfectants; and, as regards cholera and typhoid fever, it is especially important that the infective discharges from the sick should be disinfected *as soon as voided from the body*, and that whatever clothing or surfaces may have been soiled by such discharges should be disinfected as soon as practicable. The fact should also be borne in mind by all persons who have charge of infected things, that the infective property or virus of some diseases, and of cholera especially, is capable of rapid increase in filthy places and in a foul, damp atmosphere. Therefore, the cleansing and disinfection of such places should, if possible, precede the arrival or outbreak of any such pestilence. Every unclean and damp place about dwelling houses, warehouses, factories, places of assemblage, passenger vessels, railway depots, and hotels, should be made and kept perfectly clean and dry. All drains, necessities, and water-closets, should be kept as clean as

possible, and should be thoroughly purified before cholera comes into the neighborhood. Such cleansing and disinfection give the surest protection against pestilential epidemics.

It must be borne in mind, however, that although the so-called disinfectants are very useful when properly applied, they are not, by any means, infallible preventives of disease.

Dr. Baxter,<sup>1</sup> from careful experiments, arrives at the following opposite conclusions in regard to disinfectants: No virulent liquid can be considered disinfected by carbolic acid unless it contains at least two per cent. by weight of the pure acid. When disinfectants are mixed with a liquid it is very important to be sure that they are thoroughly incorporated with it, and that no solid matters capable of shielding contagion from immediate contact with its destroyer be overlooked. Aerial disinfection, as commonly practised in the sick-room, is either useless or positively objectionable, owing to the false sense of security it is calculated to produce. To make the air of a room smell strongly of carbolic acid by scattering carbolic powder about the floor, or of chlorine, by placing a tray of chloride of lime in a corner, is, so far as the destruction of specific contagion is concerned, an utterly futile proceeding. According to his views the practical result of these experiments goes to prove (1) that dry heat, when it can be applied, is probably the most efficient of all disinfectants; (2) that the old plan of stopping up crevices and fumigating with sulphur and charcoal is more efficacious than any other proceeding with more modern disinfectants; (3) that the use of carbolic vapor for disinfecting purposes should be abandoned, owing to the relative feebleness and uncertainty of its action.

<sup>1</sup> *Med. Times and Gazette*, July 29, 1876.



### Disinfectants in Common Use.

There are three important classes of disinfectants, each having specific uses as mentioned above. Some of these purifying agents accomplish only one object, others accomplish two or more objects; some may be advantageously combined; others are incompatible with each other, and must not be used together.

**CLASS I.** *Positive Disinfectants that quickly destroy or completely restrain every contagious and infectious virus.*

This class comprises the caustic acids, the acid salts of metals (soluble oxide salts), such as sulphate of iron, sulphate of zinc, etc.; carbolic and cresylic (impure carbolic) acids; which not only destroy every communicable virus of disease, but also prevent those kinds of fermentation and decay that aid in propagating epidemics. Frost destroys some infections, but preserves many others, while boiling or high steam heat destroys all contagious matter. It will be observed that no one of these agents, singly, is applicable to everything and every place that may require disinfection.

**CLASS II.** *Antiseptics, comprising chemical agents that arrest or wholly prevent fermentation and decay.*

This is a large class, and embraces carbolic and salicylic acids, and most of the agents of the first class; but not every antiseptic substance or gas (common salt or chlorine, for example) can absolutely prevent the fatal operation of epidemic infections.

**CLASS III.** *Deodorants, absorbents, etc., comprising all the chemicals that deodorize or destroy putrid exhalations, or that absorb moisture and gases.*

Charcoal, quicklime, and chlorine are good examples of this group.

Each of these three classes, and each disinfecting

agent, has its proper uses, and, as it is frequently important that these threefold means of disinfection should be applied at once to a given place or source of disease, the chemical properties of the several agents must be regarded. For example, it should be remembered that chlorine and the common alkaline compounds do not destroy the cholera infection; also, the fact that, if permanganate salts, carbolic acid, and chlorine be used together, or if the first two of them be mixed, they will simply destroy each other, and leave the infection undestroyed.

*Volatile Disinfectants.*—Carbolic acid on any surfaces from which it will evaporate, or from which it may be vaporized by steam-heat, and the sulphurous acid fumes, are examples of disinfectants belonging both to the *first* and the *second* class. Bromine and nitrous acid have similar powers, but should be used only by medical officers.

Of the volatile deodorants in Class III., chlorine is the chief, and though useful for certain purposes in the other classes (I. and II.), if intensely concentrated, it is principally useful to destroy other gases and temporarily to arrest decay. It seems not to have power to destroy the infectious property of cholera, smallpox, and the cattle-plague, while the vapor, as well as the strong solution of carbolic acid, is believed by some to have the power of arresting the infectious activity of all of them. This view, however, as already stated, is not universally accepted.

#### **How to Use Disinfectants.**

Brief mention may now be made of the proper methods of using some of the most important of the above agents.

The methods of disinfection which are here described

are preferred simply because they are effectual, safe, easily applied, and not expensive. They have been thoroughly tested, and are in accordance with the latest experience.

1. *Quicklime*.—To absorb moisture and putrid fluids, use fresh stone-lime finely broken; sprinkle it on the place to be dried, and in damp rooms place a number of plates or pans filled with the lime-powder; whitewash with pure lime, and not with kalsomine.

2. *Charcoal Powder*.—To absorb the putrid gases, the coal must be *dry and fresh*, and should be combined with *lime*; this compound is the *calx-powder*, as sold in the shops.

3. *Chloride of Lime*.—To give off *chlorine*, to destroy putrid effluvia, and to stop putrefaction, use it as lime is used; and if in cellars or close rooms the *chlorine gas* is wanted, pour strong *vinegar* or diluted *sulphuric acid* upon plates of chloride of lime occasionally, and add more of the chloride.

4. *Sulphate of Iron (Copperas) and Carbolic Acid*.—To disinfect necessaries, cesspools, drains, and sewers, and especially the vessels, grounds, or places in which the discharges from the sick with cholera and diarrhoeal diseases are evacuated, dissolve eight or ten pounds of sulphate of iron in five gallons of water, and add a pint of fluid carbolic acid (if it can be had); stir or agitate it briskly, to make a complete solution. The uses of this solution in infectious diseases will be given hereafter.

5. *Permanganate of Potassium*.—To be used in disinfecting clothing and towels from patients sick with cholera, scarlatina, typhus or typhoid fevers, during the night, or when such articles cannot be instantly boiled: throw the soiled articles immediately into a tub of water in which there has been dissolved an ounce of the permanganate

salt to every three gallons of water. Boil the clothing as soon as it is removed from this colored solution, or boil them in it. The permanganate salts must not be used with the carbolic or coal-tar disinfectants. It is also best that chlorine and the chlorides should not be used at the same time or in contact with the latter class of substances.

6. *Sulphate of Zinc*.—The Weimar Conference recommended that sulphate of zinc should be used precisely as we use permanganate of potassium. The zinc solutions need to be much stronger than those of the permanganate: use at least two ounces of *sulphate of zinc* to one gallon of water. It must be remembered that, if any of these solutions are very strong, they would destroy clothing. At the best, they are but temporary substitutes for disinfection by boiling.

7. *Carbolic Acid (Fluid)*.—This may be diluted at the rate of from forty to one hundred parts of water to one of the fluid acid. Use this solution for the same purpose as copperas is used; also, to sprinkle upon any kind of garbage or decaying matter, and on foul surfaces, or in drains. When used to disinfect clothing, carbolic acid of a pure quality should be thoroughly mixed with its own quantity of strong vinegar, and next be dissolved in one hundred times its own quantity of water before the clothing is immersed in it. This mixture with vinegar insures such complete solution of the carbolic acid, that the clothing will not be burned by undissolved drops of acid when disinfected in the carbolic-water. This weak solution (one part to one hundred) will not injure common clothing, but the acid must be of good quality and free from tarry matter. The clothing, etc., will long retain the offensive odor of the acid, except in articles

that can be immediately washed out in a strong solution of soap and soda.

If it should be desirable to destroy certain articles and their infection together, without fire, then saturate them with the acid, or use it diluted in ten to thirty times its own quantity of water. The disinfecting and antiseptic power of good carbolic acid is so great that one part of it to one hundred parts of water is sufficient for ordinary disinfecting solutions. For ordinary purposes in disinfecting clothing, the zinc solution is preferable to that of carbolic acid.

For drains, sewers, foul heaps, stables, necessities, and cesspools, the cheap "dead oil" of coal-tar, or the crude carbolic acid, answers every purpose when freely applied. Coal-tar itself is available as a disinfectant or antiseptic paint for the walls of stables, necessary-vaults, and drains. By mixing with sawdust or dry lime, coal-tar or crude carbolic acid may be used on foul grounds or heaps of refuse.

The carbolic and cresylic "acids" are derived from coal-tar. Chemically considered, they are *alcohols*, and not acids. In market they are called by the first name—carbolic acid—and are frequently much adulterated or very impure in consequence of the naphthaline and tarry matters that dissolve in this kind of alcohol. The impurities do not dissolve in water. Coal-tar and the "dead oil" of coal tar derive their disinfecting power from the "carbolic acid," of which the tar contains two or three per cent., and the dead oil contains five to twelve per cent. The impurities and adulterations of the crude "acids" make it desirable for sanitary officers to know the *percentage of crystallizable acid* in the carbolic fluids or disinfecting powder they use. Crude carbolic acid, containing fifty per cent. its weight crystallizable, is not

expensive, and is a good disinfectant for grounds, drains, or the air of a foul place in which cholera or any pestilential disease exists. Dilute or thoroughly agitate the acid in forty to one hundred parts water, and completely saturate the grounds, the surfaces, and foul things in the infected neighborhood. Streets, court-yards, drains, and sewers may be quickly and effectually disinfected in this manner. The sprinkling of streets and gutters with a cheap solution of the acid has proved very useful in damp, hot weather. Add sulphate of iron whenever it is practicable.

8. *Other Disinfectants*, such as the solutions of *Sesquichloride of Iron*, or of *Chloride of Zinc*, are effectual in necessities and drains, and upon foul surfaces and offensive materials. These metallic chlorides, combined with a twentieth part of carbolic acid, are most valuable disinfectants. A solution of *Iodine*, gr. ij, and Iodide of Potassium, gr. xx, in f℥iv of water, kept in an open vessel at a high temperature, has been employed as a disinfectant in scarlatina. *Carbolates of lime* and *carbolic powders* do not contain sufficient carbolic acid to render them important.

9. *Boiling or High-steam Heat*.—Whenever foul clothing and infected things can be boiled, or have a boiling heat steadily applied and kept up for an hour, this is one of the simplest and best modes of disinfection. But, until such high heat is actually applied to the infected things, some one of the disinfecting solutions must be used. A common steam tub (in a laundry, or elsewhere), with a tight cover, is a good disinfecting vat; but the temperature must be kept boiling-point.

**Places that must be Disinfected, and how to Disinfect them.**

*Water-closets, necessities, close-stools, bed-pans, etc.*—For general disinfection use either of the substances, 4 or 7, as described in the numbered sections of the foregoing directions.

*Cellars, vaults, stables, or any damp or offensive places.*—Use 1, 2, 3, 4, or 7, in any manner suited to the objects to be attained, as described in these directions.

*Sick-rooms, bedrooms, and closets.*—Ventilate and keep clean, and use substances described in sections 1, 2, or 3, according to directions.

*To disinfect water-closets, necessities, waste-pipes, and all kinds of drains and foul places in houses, stables, and yards, and especially in any drain or sewer that is liable to become offensive, use a strong solution of copperas (sulphate of iron) alone—in the proportion of two or three pounds to a gallon of water—or combined with carbolic acid.* This solution may be made by mixing eight pounds of dry copperas and a pint of fluid carbolic acid in five gallons of water, and stirring the mixture briskly.

*To keep necessities and water-closets from becoming infected or offensive, pour a pint of this solution into every water-closet, pan, or necessary-seat morning and evening, or a solution of chloride of iron, one pound to a gallon of water, adding one or two ounces of carbolic acid.* Garbage and garbage-tubs should be daily disinfected with this fluid.

*Public urinals* should be kept clean with a constant current of water; chloride of lime may be sprinkled on the pavement near by, the chlorine of which decomposes the ammonia of the urine as formed. Where disinfectant irrigation is necessary, a sprinkling mixture employed for disinfecting streets and gutters will be efficient, the proportions of which are as follows: 40 gallons of the ferrous chlorate liquor (formed by the action of

muriatic acid and iron on tin clippings), 4 gallons of impure carbolic acid, 83 per cent. strength, to 300 gallons of water.

*To disinfect masses of filth in necessities, sewers, or drains,* gradually pour in the solution, hour by hour, until every part of the mass or foul surface has been thoroughly disinfected. To every cubic foot of filth give a pint or more of this strong solution. To every necessary and water-closet allow at the rate of one pint of this solution, to be poured daily, at evening, for every four persons that use the same. This practice to be kept up while the hot weather lasts.

If these rules be made general in all private dwellings, not only will the house-drains of such dwellings be disinfected, but the benefit will extend even to the public sewers.

The seats and floors of all water-closets in private houses, at ferry-houses, at hotels and lodging houses, on steamboats, and rail-cars, should be frequently washed with a solution of one ounce of carbolic acid in each gallon of water.

*To disinfect dwellings, hospital wards, prisons, or any locality infected with contagious germs,* metallic salts are of little benefit. Charcoal absorbs but a small portion of the mephitic gas; indeed, in such cases, the object is not so much to destroy the odors of decomposition as the infected germs, and so prevent further propagation. Fumigations of chlorine, sulphurous acid, and the vapors or spray of carbolic acid are particularly beneficial, and cannot well be replaced by any other agent. The fumigations should be practised until all animal odor disappears.<sup>1</sup>

*To disinfect sewers, stables, gutters, foul ditches, filthy ground, slimy surfaces of drying ponds, etc., or other place*

<sup>1</sup> Dr. S. O. Vander Poel, Trans. of State Med. Soc. of N. Y., 1875, 235.



where there are great surfaces or masses of putrid matter; use the "heavy oil of coal-tar," or some one of the strongest disinfecting powders that are made from coal-tar. Heavy oil, or coal-tar, used with copperas, or used alone, is the most effectual and the cheapest disinfectant for this class of nuisances. The inside walls of foul stables, vaults, cellars, open gutters, and all such places, can be quickly and permanently disinfected by occasionally laying upon these surfaces a coating of the "heavy oil," or of the crude coal-tar.

Sewers and all foul drains can be kept perfectly disinfected by pouring into them, at as many places as possible, a small quantity of the "heavy oil," or a quantity of the strongest solution of sulphate or sesquichloride of iron mixed with a twentieth part as much crude carbolic acid, and well stirred together.

Wherever it is proper to use a powder that does not dissolve, as upon filthy heaps, and in larger drains or cesspools, stables, cellars, and the like, carbolic acid or coal-tar powders are effectual. And for use in a larger way, upon filthy masses, and drying, stagnant or foul pools, a powerful disinfectant may be made by mixing one part (by measure) of "heavy oil" with five parts of quicklime and ten parts of sawdust, to use by covering the foul places with this mixture.

*To disinfect a necessary or a quantity of earth that is contaminated with Cholera-excrement, or liable to be infected.*—Use the mixed carbolic and copperas solution, saturated strength, as follows: To every cubic foot of soil or filth give two or three pints of the strong solution. To every necessary and water-closet allowed at the rate of one pint of this solution, to be poured in daily, at evening, for every four persons on the premises; this practice to be kept up while cholera is in the district or country.

This method of systematic disinfection would be useful in every household; but when cholera is present in any city or country, such thorough application of this means of protection cannot be safely neglected in any city to which persons may come from towns where cholera is epidemic. Sanitary chemists advise that the estimated quantity of these water-closet and sewer disinfectants required for each person daily, in the presence of cholera, should be one half an ounce of sulphate of iron and one half a drachm or one half a teaspoonful of carbolic acid.

#### Things to be Disinfected.

1. *Beds, bedding, and upholstered stuffs.*—Expose to sunlight and ventilation freely and frequently. If actually infected, thoroughly moisten every part with a strong solution of carbolic acid or permanganate of potassium.

2. *Soiled clothing, etc., from the sick with Cholera or any Contagious Disease.*—Use a solution of permanganate of potassium or carbolic acid, precisely as previously directed, and as soon as the soiled articles are removed from the patient; or place them in a tub containing eight ounces sulphate of zinc, three ounces carbolic acid, and three gallons of water, for one hour, and then put them in boiling water; or the clothing may be thoroughly steeped, before boiling, in a solution of two ounces of chloride of lime in a gallon of water. Or immerse them at once in boiling water. In any case of infectious disease, the clothing must be boiled previous to washing or drying. Infected clothing must be thrown into the water at boiling heat. The boiling should be kept up for an hour.

Woolen goods must be treated differently. They must be exposed for some time to the fumes of sulphur, and

afterwards freely exposed to the action of the sun and wind.

3. *Carpets, sofas, lounges, mattresses, floors, etc., infected by Cholera-excrement, or by Smallpox, Scarlatina, and other Contagions*, should be treated as follows:—

First. Thoroughly moisten every infected thing with one of the carbolic or permanganate solutions.

Second. *Rules for Fumigation*.—To give still greater completeness to the disinfection required for an infected apartment and thick woollen stuffs, carpets, etc., to which boiling heat cannot be applied, fumigate with sulphurous acid, thus: Arrange to vacate room for twelve hours; close every window and aperture, and, upon an iron pipkin, or kettle with legs, burn a few ounces of sulphur; the quantity required for effectual work will depend upon cubical space of the apartment, and there should be enough to burn rapidly until want of oxygen in the air shall extinguish the flame. Instantly after kindling it every person must withdraw from the place, and the room must remain closed for the succeeding eight hours. After this time the windows should be thrown open, and when the fumes have disappeared, all the woodwork and walls should be thoroughly washed with soft soap and water, to which *carbolic acid* has been added (one pint of the common liquid to three or four gallons of water), and the paper from the walls stripped off. In whitewashed rooms the walls should be scraped, and then washed with hot lime, to which *carbolic acid* has been added. The windows should then be kept open for thirty-six or forty-eight hours. If any other kind of fumigation is resorted to (as that by chlorine, bromine, or nitrous acids), a sanitary officer or a chemist should superintend the process. Fumigation should be resorted to in dwelling-houses only by official orders or permission, or under the personal

superintendence of a competent medical man, as the disinfecting gases are very poisonous.

4. Finally, let *fresh air* and *sunlight* purify every place they can reach. Open and dry all cellars and vaults, and keep the grounds and surfaces about dwellings as dry and clean as possible. Use fresh lime or the "calx-powder" freely upon wet or offensive surfaces. Flush the water closets and drains daily before throwing in the disinfectants as directed. Domestic and personal cleanliness should be everywhere observed. *There are no substitutes for pure air and water.*

(Rules for Disinfecting Impure Drinking-water will be detailed on another page.)

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## DIRECTIONS FOR PREVENTING THE SPREAD OF INFECTIOUS DISEASES.<sup>1</sup>

I. When a case of infectious disease occurs in a house, immediate notice thereof should be given to the proper officer of health, and medical advice at once procured.

The following precautions should be taken :—

1. *Isolate the person affected as much as possible from the other inmates of the house.* This is most readily effected by at once removing him to an upper room, if circum-

<sup>1</sup> These rules are an embodiment of the excellent paper published in the *Sanitarian*, Jan. 1877, from the pen of J. M. MacLagan, M.D., Medical Officer of Health for Hexham and Haltwhistle Unions Rural Sanitary Districts, England, and are applicable to smallpox, scarlet fever, measles, typhus fever, enteric fever, whooping cough, diphtheria, etc. Additions have been made to these directions to still further increase their efficiency.

stances permit. The room should be large and airy, and means of ventilating it at once adopted. If the sick cannot thus be separated from all other persons, the Board of Health will send the patient to hospital. Persons with smallpox must not be moved from one house to another, or to hospital, except by permission of the Board of Health.

2. Before removing the patient the following preparations ought to be made in the room: All superfluous *curtains, carpets, woollen articles, unnecessary clothing, bedding, etc.*—in short, *everything likely to retain infection*—should be *at once removed*.

3. The patient's *bed* ought to be so placed as to allow of a *free current of air* around it, but not so as to place it in a *draught*.

4. *The room must be kept well ventilated*, under the physician's direction, by means either of a fire (when required) or of an open fireplace and chimney, and of windows opening to the external air. By means of the latter ventilation is effectually procured, so as to avoid draughts, in the following manner: *Raise the lower sash of the window three or four inches, then procure a piece of wood made to fit accurately into the lower opening, and place it there.* By these means free outward and inward currents of air—without causing any draughts—are obtained through the vacant space between the two sashes. *When a window is merely opened from the upper or lower sash, draughts are invariably caused.*

5. Placing a small sheet of oil-cloth, mackintosh, or other waterproof material, beneath the upper blanket on which the patient is to rest, effectually prevents the bed from being soiled by any discharges, etc.

II. 1. After removal of the patient to the room in which he is to remain, the outside of the door and door-posts

should be completely covered by a sheet kept constantly wetted with some disinfecting solution. A piece of muslin, one foot square, should be dipped in the same solution and suspended constantly in the sick-room.

2. The room must be kept scrupulously clean. Before being swept, which should be done daily, *if possible*, the floor should be sprinkled with some *disinfecting powder*, or with a weak solution of a disinfecting fluid.

3. Vessels containing disinfecting fluids should be placed in the room for the reception of all bed and body linen, towels, handkerchiefs, etc., immediately on being removed from the patient, and on no account should they be washed along with other household articles.

4. Disinfectants, as already mentioned, should also be placed in all the chamber utensils used by the patient, and, after use, more disinfecting fluid should be added, and the whole contents, if possible, should be immediately *buried* deeply in the ground, at a distance from any drain, well, or watercourse. On no account should they be thrown on any ash-pit, dunghill, or into any cesspool. The vessel, after being thoroughly emptied, must be cleansed with boiling water. *No chamber vessel should be allowed to remain in the room after having been used.*

5. All plates, cups, glasses, etc., which have been used by the patient, should be rinsed with some disinfectant before being washed; and on no account should any vessels used in the sick-room be washed along with other things, unless previously thoroughly disinfected.

6. Attendants on the sick should be chosen, if possible, from those who have already had the disease. They should not wear woollen dresses, but only those made of washing materials. It is advisable not to use handkerchiefs about the patient, but soft rags for cleansing the nostrils and mouth, to be immediately thereafter burned.

7. Basins containing water, to which some disinfectant has been added, should be at hand for the benefit of the attendants on the sick, who should not be sparing of their use.

8. No article of food or drink from the sick-room should be consumed by other persons.

9. Visitors to the sick-room, except in the case of *clergymen* and *medical men*, should be peremptorily forbidden; and they, when necessarily present, should, on leaving, wash their hands in water to which a disinfectant has been added, and should have as little immediate communication with others as possible.

III. When a death from infectious disease occurs, the body should be wrapped in a clean sheet, and at once placed in a coffin and sprinkled with some disinfecting fluid, such as a carbolic solution, or powder, such as *chloride of lime*, etc., and *buried with the least possible delay. On no account whatever should it be allowed to remain in a room occupied by living persons.*

IV. 1. *On the termination of a case of infectious disease*, either when the patient is pronounced *free from infection*, or, in the event of *death*, after *removal of the body*, the sick-room and its contents should be thoroughly cleansed and disinfected. The ceilings and side walls of the sick-room, after removal of the patient, should be thoroughly cleansed and lime-washed; and the wood-work and floor thoroughly scrubbed with soap and water. Or, if previous fumigation be thought desirable, it may be practised according to directions given on a preceding page.

2. The bed and bedclothes, and all wearing apparel used by the attendants or patient, should be *thoroughly disinfected* before removal from the sick-room.

Beds, pillows, and thick stuffs, after being soaked in disinfecting fluid, must be placed on the roof, or in an

empty room, to dry. They must not be placed in the yard or in the hall-ways. All straw beds and refuse stuff must be burned.

V. 1. In houses where a case of infectious disease occurs, no *washing, tailoring, dressmaking*, nor any similar occupation, ought to be carried on.

2. No *milk* or *food* of any kind should be supplied from infected houses. Milk has frequently been found to be a fruitful medium for conveying disease, either from having been placed in infected air, from which it has absorbed the poison, or from *milk pails* having been washed, or the milk adulterated, with water containing the infection. *Great care should therefore be taken as to the source of the household milk supply.*

3. *Children* from infected houses should not be allowed to attend schools, and *all persons* from infected houses should have as little communication as possible with others, either in *private houses* or in public places, such as *rail-ways, omnibuses, public-houses, churches, etc.*

4. Any accumulation of *filth* or *refuse* of any kind should be at once removed from or about the premises, and *disinfectants* *freely used*. If this cannot be done by the persons themselves, immediate notice should be given to the sanitary authorities.

5. Open and thoroughly ventilate cellars, garrets, closets, sleeping-rooms, and all other apartments, and keep them clean and dry. Observe the utmost cleanliness in basements, areas, and grounds about the house.

6. The existence of nuisances of any kind and where-soever situated should also be at once reported. In the event of *sewer gas*, continued *offensive odors*, or *constant sickness* occurring in a house, proper workmen should be obtained in order to see if any structural defects exist in



sinks, drains, water-closets, necessities, etc. If such should exist, disinfection merely will be of no avail.

**Directions to Persons in charge of the Unburied Dead from Infectious Disease.<sup>1</sup>**

*Cleansing.*—In cleansing the surface of the corpse, especially the parts most soiled by discharges, use the solution of *chlorinated soda* (Labarraque's solution, of the shops), a pint to two quarts of hot water. A solution of *chloride of lime*, made by straining or decanting a gallon of water into which a pound of that substance has been thrown, answers the same purpose. This cleansing is required for the whole person in every case of death from *cholera*, *fever*, *scarlatina*, or *smallpox*. Cloths, sponges, etc., employed about the dead must be instantly burned or boiled.

*Disinfection.*—Fill a large wad of cotton or fine shavings with two pounds of coal-tar powder, or chloride of lime, and place it beneath the hips; and, in cases of cholera, place much more of this kind of absorbent material beneath the corpse, to absorb and disinfect the purged fluids that may flow.

*Directions in the Family.*—Whatever disease has caused the death, order every garment and cloth that was used upon the dead person, and in cholera and infectious fevers, *whatever was about the person or was soiled during sickness*, to be immediately boiled, or, until boiled, to be kept in one of the disinfecting solutions. Ventilate every room and closet upon the floor where a death has occurred from an infectious disease. Keep windows and fireplaces open for several days.

*Burials.*—The dead of cholera should be interred as soon as practicable, and always *within thirty-six hours after death*.

<sup>1</sup> From the report of New York Board of Health for 1873.

# DIETETIC RULES AND PRECEPTS.

( 263 )



## DIGESTIBILITY OF ALIMENTARY SUBSTANCES.

Few practitioners have made a careful study of aliments, considered individually or in their relations to one another. Even the relative composition of the various articles of food is to most of them an unknown quantity; and yet nothing is more important to the medical attendant on the sick than the knowledge judiciously applied of the principles of dietetics. With a proper appreciation of the amount of albuminous, starchy, saccharine, or oleaginous matters in each article of diet which his patient may employ, he will be much more competent to suggest the appropriate course to be pursued as supplementary to a rational medical treatment.

The following tables will at once give an insight into the digestibility of a large number of articles of food in common use, showing the various grades of easy, moderately easy, or difficult digestion; a comparison between animal and vegetable aliments in these respects; the elementary composition of the chief articles, etc.

**Composition of Various Articles of Food (in 100 parts).<sup>1</sup>**

	Water.	Albumen, etc.	Starch.	Sugar.	Fat.	Salts.
Bread . . .	37	8.1	47.4	3.6	1.6	2.3
Biscuit . . .	8	15.6	73.4		1.3	1.7
Wheat flour . . .	15	10.8	66.3	4.2	2.0	1.7
Barley meal . . .	15	6.3	69.4	4.9	2.4	2.0
Oatmeal . . .	15	12.6	58.4	5.4	5.6	3.0
Rye meal . . .	15	8.0	69.5	3.7	2.0	1.8
Indian corn meal . . .	14	11.1	64.7	0.4	8.1	1.7
Rice . . .	13	6.3	79.1	0.4	0.7	0.5

<sup>1</sup> From estimates by Letheby and Parkes, in *Treatise on Food and Dietetics*, by F. W. Pavy, p. 427, Phila., 1874.

	Water.	Albumen, etc.	Starch.	Sugar.	Fat.	Salts.
Peas . . .	15	23.0	55.4	2.0	2.1	2.5
Arrowroot . . .	18	....	82.0	....	...	...
Potatoes . . .	75	2.1	18.8	3.2	0.2	0.7
Carrots . . .	83	1.3	8.4	6.1	0.2	1.0
Parsnips . . .	82	1.1	9.6	5.8	0.5	1.0
Turnips . . .	91	1.2	5.1	2.1	...	0.6
Cabbage . . .	91	2.0	5.8	...	0.5	0.7
Sugar . . .	5	.....	.....	95.0	...	...
Treacle . . .	23	.....	.....	77.0	...	...
New milk . . .	86	4.1	.....	5.2	3.9	0.8
Cream . . .	66	2.7	.....	2.8	26.7	1.8
Skim milk . . .	88	4.0	.....	5.4	1.8	0.8
Buttermilk . . .	88	4.1	.....	6.4	0.7	0.8
Cheese . . .	36.8	33.5	.....	...	24.3	5.4
Cheddar cheese . . .	36	28.4	.....	...	31.1	4.5
Skim cheese . . .	44	44.8	.....	...	6.3	4.9
Lean beef . . .	72	19.3	.....	...	3.6	5.1
Fat beef . . .	51	14.8	.....	...	29.8	4.4
Lean mutton . . .	72	18.3	.....	...	4.9	4.8
Fat mutton . . .	53	12.4	.....	...	31.1	3.5
Veal . . .	63	16.5	.....	...	15.8	4.7
Fat pork . . .	39	9.8	.....	...	48.9	2.3
Green bacon . . .	24	7.1	.....	...	66.8	2.1
Dried bacon . . .	15	8.8	.....	...	73.3	2.9
Ox liver . . .	74	18.9	.....	...	4.1	3.0
Tripe . . .	68	13.2	.....	...	16.4	2.4
Cooked meat, roast, no dripping being lost; boiled meat assumed to be the same . . .	54	27.6	.....	...	15.45	2.95
Poultry . . .	74	21.0	.....	...	3.8	1.2
White fish . . .	78	18.1	.....	...	2.9	1.0
Eels . . .	75	9.9	.....	...	13.8	1.3
Salmon . . .	77	16.1	.....	...	5.5	1.4
Entire egg . . .	74	14.0	.....	...	10.5	1.5
White of egg . . .	78	20.4	.....	...	...	1.6
Yolk of egg . . .	52	16.0	.....	...	30.7	1.3
Butter and fat . . .	15	.....	.....	...	83.0	2.0
Beer and porter . . .	91	0.1	.....	8.7	...	0.2

Another useful but less scientific classification of alimentary substances, is that which arranges them into the three groups mentioned in the following summary, according to their relative digestibility. The practitioner,

in special cases, where more minute information is needed, may supplement this table by data derived from works particularly devoted to dietetics.<sup>1</sup>

Easy of Digestion.	Moderately Digestible.	Hard to Digest.
Mutton.	Beef.	Pork.
Venison.	Lamb.	Veal.
Hare.	Rabbit.	Goose.
Sweetbread.	Young pigeon.	Liver.
Turkey.	Duck.	Heart.
Chicken.	Wild waterfowl.	Brain.
Partridge.	Woodcock.	Salt meat.
Pheasant.	Snipe.	Sausage.
Grouse.	Soups.	Hashes.
Beef-tea.	Eggs.	Mackerel.
Mutton broth.	Butter.	Eels.
Milk.	Turtle.	Salmon.
Turbot.	Cod.	Herring.
Haddock.	Pike.	Halibut.
Flounder.	Trout.	Salt fish.
Sole.	Raw or stewed oysters.	Lobster.
Fresh fish generally.	Potatoes.	Crabs.
Roasted oysters.	Beets.	Shrimps.
Stale bread.	Turnips.	Muscles.
Rice.	Cabbage.	Oil.
Tapioca.	Spinach.	Melted butter.
Sago.	Artichoke.	Raw eggs.
Arrowroot.	Lettuce.	Cheese.
Asparagus.	Celery.	Fresh bread.
Sea kale.	Apples.	Muffins.
French beans.	Apricots.	Buttered toast.
Cauliflower.	Currants.	Pastry.
Baked apples.	Raspberries.	Cakes.
Oranges.	Bread.	Custards.
Grapes.	Farinaceous puddings.	Nuts, pears, plums.
Strawberries.	Jelly.	Cherries, pine-apples.
Peaches.	Marmalade.	Cucumbers, onions.
Toast-water.	Rhubarb plant.	Carrots, parsnips.
Black tea.	Cooked fruits.	Peas, beans, mushrooms.
Sherry.	Cocoa.	Pickles.
Claret.	Coffee.	Chocolate.
Ale.	Porter.	Champagne.

The following tables, exhibiting the relative digestibility of animal and of vegetable substances, are self-explanatory, the mode of cooking of each article being

<sup>1</sup> Dr. H. Hartshorne's *Essentials of the Principles and Practice of Medicine*, p. 224, Phila. 1874.

given, as well as the time necessary for chymification. These facts are so constantly essential to the well-being of the patient, and to satisfactory treatment by the practitioner, that but little further comment is necessary.

### Relative Digestibility of Animal Substances.<sup>1</sup>

Article of diet.	How prepared.	Time of chymification.
Pigs feet (soused) . . . . .	Boiled	1 <sup>h</sup> 0 <sup>m</sup>
Tripe " . . . . .	Boiled	1 0
Eggs (whipped) . . . . .	Raw	1 30
Salmon trout . . . . .	Boiled	1 30
Venison steak . . . . .	Broiled	1 30
Brains . . . . .	Boiled	1 45
Ox liver . . . . .	Broiled	2 0
Codfish (cured dry) . . . . .	Boiled	2 0
Eggs . . . . .	Roasted	2 15
Turkey . . . . .	Boiled	2 25
Gelatin . . . . .	Boiled	2 30
Goose . . . . .	Roasted	2 30
Pig (sucking) . . . . .	Roasted	2 30
Lamb . . . . .	Broiled	2 30
Chicken . . . . .	Fricassee <sup>d</sup>	2 45
Beef . . . . .	Boiled	2 45
Beef . . . . .	Roasted	3 0
Mutton . . . . .	Boiled	3 0
Mutton . . . . .	Roasted	3 15
Oysters . . . . .	Stewed	3 30
Cheese . . . . .	Raw	3 30
Eggs . . . . .	Hard boiled	3 30
Eggs . . . . .	Fried	3 30
Beef . . . . .	Fried	4 0
Fowls . . . . .	Boiled	4 0
Fowls . . . . .	Roasted	4 0
Ducks . . . . .	Roasted	4 0
Cartilage . . . . .	Boiled	4 15
Pork . . . . .	Roasted	5 15
Tendon . . . . .	Boiled	5 30

A similar tabular arrangement of vegetable aliments may also be made.

<sup>1</sup> H. Letheby, Lectures on Food, 2d edition, London, 1872, p. 56.

**Relative Digestibility of Vegetable Substances.<sup>1</sup>**

Article of diet.	How prepared.	Time of chymification.
Rice . . . . .	Boiled	1 <sup>h</sup> 0 <sup>m</sup>
Apples (sweet and mellow) . . . . .	Raw	1 30
Sago . . . . .	Boiled	1 45
Tapioca . . . . .	Boiled	2 0
Barley . . . . .	Boiled	2 0
Apples (sour and mellow) . . . . .	Raw	2 0
Cabbage with vinegar . . . . .	Raw	2 0
Beans . . . . .	Boiled	2 30
Sponge cake . . . . .	Baked	2 30
Parsnips . . . . .	Boiled	2 30
Potatoes . . . . .	Roasted	2 30
Potatoes . . . . .	Baked	2 33
Apple dumpling . . . . .	Boiled	3 0
Indian corn cake . . . . .	Baked	3 0
Indian corn bread . . . . .	Baked	3 15
Carrot . . . . .	Boiled	3 15
Wheaten bread . . . . .	Baked	3 30
Potatoes . . . . .	Boiled	3 30
Turnips . . . . .	Boiled	3 30
Beets . . . . .	Boiled	3 45
Cabbage . . . . .	Boiled	4 0

**DIETETIC PREPARATIONS FOR THE SICK.**

The practitioner is frequently appealed to for instructions, not only as to the nature of the diet appropriate for his patient, but also as to the precise manner in which it should be prepared, to be at once palatable, nutritious, and continuously serviceable. Not having familiarized himself with the simplest principles of cookery, he is sometimes at a loss to know what suggestion to make, or what advice to offer, in order to insure the greatest attainable perfection of culinary effort. At any moment he may be called upon for his views as to the best methods of preparing even the most ordinary dietetic articles for

<sup>1</sup> Letheby, *op. cit.*, p. 58.



the sick-room, such as beef-tea, mutton broth, flaxseed tea, etc.; and he should also be able to suggest, in convalescence, the use of other substances, that may form an essential feature in the recovery of his patient.

With the view of assisting the practitioner in this channel, which is too frequently left to the unskilled and uninstructed, the following useful recipes and suggestions are offered. An alphabetical arrangement is adopted, rather than any systematic attempt at classification, so that the practitioner may at once find the article when most needed.<sup>1</sup> It will be, of course, his duty to decide which of these articles are adapted for patients who may be seriously sick, as distinguished from those which may be taken, almost with impunity, by convalescents.

#### **Almond Emulsion.**

Beat an ounce and a quarter of blanched sweet almonds with five drachms of white sugar in a porcelain mortar into a smooth pulp, gradually adding a quart of soft water, and stirring actively until the whole is mixed. Strain through linen.

An agreeable demulcent drink.

#### **Alum Whey.**

Add a quarter of an ounce of powdered alum to a pint of boiling milk, and strain; flavor with sugar and nutmeg, if desired.

A useful astringent drink.

<sup>1</sup> Some of the palatable preparations here given are obtained from manuscript recipes of excellent housekeepers. Others are derived from works on dietetics, especially that of Pavy, already referred to; from Florence S. Lees's "Handbook for Hospital Sisters;" and from several standard works on cookery, whose object is to give the most reliable information on this subject. The most desirable recipes from a large mass of such material have been selected for insertion here.

**Apple Barley Water.**

Add half a pound of apples, cut in slices, with the skin on and the pips removed, to a pint of barley water. Add sliced lemon, boil gently until done, and pass through a colander.

A cooling drink in febrile affections.

**Apple Water.**

Carefully roast three good tart apples, preserve the juice, put in a quart pitcher, pour on it about a quart of boiling water, cover, and drink when cold.

An agreeable drink may also be made by baking an apple over which a teaspoonful of brown sugar has been sprinkled, adding toast water (see p. 297) to it when browned, and flavoring with orange or lemon-peel.

A pleasant drink in fevers, etc.

**Arrowroot.**

Mix two teaspoonfuls of arrowroot with three tablespoonfuls of cold water, and pour on them half a pint of boiling water, keeping it well stirred. If the water be merely warm, the arrowroot must afterwards be boiled until it thickens. Add sugar, and flavor with lemon-peel or nutmeg, or add sherry or brandy if required. If milk is used instead of water, wine must be omitted, as it will curdle the milk.

A nutritive preparation for convalescents especially.

**Arrowroot Pudding.**

Mix a tablespoonful of arrowroot with cold water, put it over the fire in a porcelain-lined saucepan, add a pint of boiling milk, stirring constantly, and one egg well beaten with a tablespoonful of white sugar; let it boil for five or ten minutes. If a baked pudding is preferred,

it may be mixed in the same way and baked in a moderately quick oven for twenty or thirty minutes.

May be taken in the early periods of convalescence.

#### **Arrowroot Water.**

Mix well in a pan three ounces of arrowroot, two of white sugar, peel of half a lemon, quarter of a teaspoonful of salt, two quarts of water; set on the fire and boil for a few minutes. Use either hot or cold.

A nutritious drink in diarrhoea, fevers, etc.

#### **Barley Gruel.**

Wash two ounces of pearl barley, boil in a quart of water till reduced to a pint; strain, add a little sugar and three wineglassfuls of port wine, or milk if the wine be contraindicated, and heat it up before using.

For convalescents and anæmic patients.

#### **Barley Soup.**

Add a pint of boiling water and a small quantity of salt and sugar to half a cupful of good washed pearl barley, put into an earthenware pot with a piece of butter about the size of a nut, and a piece of fine cinnamon. Cook over a slow fire until soft, strain through a fine hair sieve. Stir the beaten yolk of an egg into the soup. Add more boiling water while cooking if necessary.

#### **Barley Water.**

Wash two ounces of pearl barley well with cold water, throwing away the washings. Boil with a pint and a half of water for twenty minutes in a covered vessel and strain. Sweeten and flavor with lemon-peel or lemon juice.

Another agreeable formula—for a compound barley water—is to put two ounces of pearl barley well washed

in cold water into half a pint of boiling water; let it stand for five minutes, pour it off, add three pints of boiling water, a little salt, half a dozen nice figs sliced, a handful of cut raisins, and a small stick of liquorice; let this simmer for fifty minutes, strain, and add a little sweetening if necessary.

A diluent and moderately nutritious drink.

#### **Barley Wine (Aromatic).**

Boil a quart of barley water down to a third; add while hot a pint of sherry, a drachm of tincture of cinnamon, and an ounce of refined sugar.

To a convalescent, a wineglassful may be given two or three times daily.

#### **Beef Broth.**

Take a pound of lean beef, some sweet herbs, put in a saucepan with two quarts of water, simmer to one quart. Let it stand until cold, skim off the fat carefully; if small particles should remain, lay a piece of clean blotting-paper on the broth, in order to remove them.

A simple restorative after acute disease.

#### **Beef, Raw.**

Take half a pound of juicy beef, free from any fat; mince it very finely; then rub it into a smooth pulp either in a mortar or with an ordinary potato masher, and press it through a fine sieve. Spread a little out upon a plate and sprinkle over it some salt, or some sugar if the child prefers it. Give it alone or spread upon a buttered slice of stale bread.

This is an excellent food for children with dysentery, and also for adults.

Another formula for its preparation is recommended in France :—<sup>1</sup>

The fat should be removed (one reason being that it may contain cysticercus). The best part is the rump steak. The fibres are here best suited for rasping in longitudinal direction. This is the best mode of preparing it, as chopping removes from the meat most of its juice, and does not give such good division. The rasping is done with a sharp knife-blade—the sharper the better. The piece of meat should be pretty thick, and of lozenge shape; the rasping can be done on all the facings, in the natural direction of the muscular fibre. The meat is generally reduced to the form of a pill or bolus, which is rolled in powdered sugar on crumbs of bread. If it cannot be taken thus, it may be given under the mask of cold bouillon. One of the best methods is to prepare a thin porridge of tapioca; let it cool until it cannot cook the meat in the least. Then the meat, finely rasped, is introduced into a small quantity of the cold soup till the mixture is complete, having the aspect and consistence of a fine soup of tomatoes. Next the tapioca porridge is gradually poured on this soup, the mixture being constantly stirred.

#### **Beef Tea.**

It should be borne in mind that prolonged boiling or simmering produces a broth instead of a tea, destroying the flavor and nutrient power. All that is needed is to heat the cold infusion to about 170° Fahr., which is just sufficient to coagulate the albumen and coloring matter, and thus deprive the product of its character of rawness.<sup>2</sup> Being so important a dietetic agent, several formulæ are given for its manufacture.

<sup>1</sup> *New Remedies*, 1876.

<sup>2</sup> *Pavy*, *op. cit.*

The most agreeable and nutritive form of beef-tea is made as follows:—

1. Mince finely one pound of lean beef, and pour upon it, in a preserve jar, or other suitable vessel, one pint of cold water. Stir, and allow the two to stand for about an hour, that the goodness of the meat may be dissolved out. Next, stand the preserve jar or other vessel in a saucepan of water, and place the saucepan over the fire or a gas-stove, and allow the water in it to gently boil for an hour. Remove the jar, and pour its contents on a strainer. The beef tea which runs through contains a quantity of fine sediment, which is to be drunk with the liquid, after being flavored with salt at discretion.

2. *Liebig's Beef-tea*.—On half a pound of raw lean beef (or chicken, etc.), finely minced, pour, in a glass or earthenware vessel, three-quarters of a pint of water containing three or four drops of muriatic acid, and half a saltspoonful of salt; stir well together and allow it to stand for an hour. Strain through a hair-sieve and rinse the residue with a quarter of a pint of water. The result is the juice of the meat with uncoagulated albumen, and muscle fibrin, which has been dissolved by the agency of the acid. It is to be taken cold, or, if warmed, must not be heated beyond 120° Fahr. No cooking will have been employed. Although much richer in nutritive material and more invigorating than ordinary beef-tea, the raw-meat color, smell, and taste, are to many an objection to its use.<sup>1</sup> (See Restorative Soup, p. 291.)

3. Take one pound of juicy lean beef—say a piece from the shoulder or the round—and mince it. Put it

<sup>1</sup> Pavy, *op. cit.*

with its juice into an *earthen* vessel containing a pint of tepid water, and let the whole stand for one hour. Then slowly heat it to the boiling-point, and let it boil for three minutes. Strain the liquid through a colander, and stir in a little salt. If preferred, a little pepper or allspice may be added.

Recommended for children by the Philadelphia Obstetrical Society.

4. Take a pound of lean, juicy beef, being sure to remove all skin and fat, cut in small squares, and place in a porcelain-lined saucepan with a pint of cold water. After soaking for an hour, put it over a slow fire and let it simmer for two or three hours, carefully skimming it occasionally, then boil quickly for a few minutes, when it may be strained and served. Salt and pepper may be added if desired.

#### **Biscuit Jelly.**

Pour a quart of boiling water over a two-ounce biscuit, boil until reduced one-half, strain, and stir in a little wine and half a pound of white sugar, simmer until reduced to half a pint, and set aside to cool.

Useful in debilitated conditions of the digestive organs.

#### **Blanc Mange.**

Pour half a pint of cool water on half an ounce of isinglass, put it near the fire to simmer until perfectly dissolved. In the mean time whip one pint of cream with rather less than three ounces of sugar to a stiff froth, flavoring with extract of lemon or vanilla. When the isinglass is quite soft and while lukewarm, pour the cream slowly in, beating constantly until stiff enough to drop from the spoon. Pour in moulds. Milk may be substituted for the water.

**Bran Loaf.**

Boil two quarts of wheat bran in sufficient water to well cover it, for five minutes, strain through a sieve, then add fresh water and boil ten minutes, strain through a sieve a second time, then pour cold water over it until the water runs through perfectly clear. Press the bran tightly in a cloth, making it as dry as possible, then spread thinly on a dish and put in a slow oven for several hours or over-night, and when dry and crisp it will be ready to grind. Grind very fine in a mill and sift through a fine wire sieve (a brush may be needed to pass it through). The bran must be soft and fine. Take three ounces of this bran powder, three eggs, an ounce and a half of butter, and a small teacupful of milk. Warm the butter in part of the milk, and mix the eggs well with the other portion, add a little nutmeg, and stir all well together. Just before putting in the oven stir in half a drachm of bicarbonate of sodium and three teaspoonfuls of hydrochloric acid. Bake in a well-buttered pan for an hour or more.

Valuable in the dietetic treatment of diabetes.

**Bran-Flour Jelly.**

Take half a pint of bran flour, moisten it with cold water, then stir it into a quart of boiling water, let it boil slowly for half an hour, stirring it almost constantly to prevent scorching, then pour through a coarse sieve into a mould; when cold turn it out, and eat with milk or cream, with a little sugar if desired.

**Brandy and Egg Mixture.**

(See *Egg Brandy*.)



**Bread Jelly.**

Toast lightly three or four slices of stale bread, removing the crust before toasting. Have ready in a porcelain-lined saucepan three pints of boiling water, lay the bread in it, along with the half of a small lemon thinly sliced; boil until it jellies, then strain and sweeten to the taste.

A useful food for infants about the period of weaning, for children suffering from acute affections, etc.

**Bread and Milk.**

Even the simplest dishes may be spoiled by not being properly cooked. Cut stale bread into small square pieces, put in a dish, let the milk boil, at which point pour it over the bread. Cover the dish closely for about ten minutes, when the bread will be well soaked and ready for use.

**Bread Panada.**

(See *Panada*, *Bread*.)

**Calves'-Feet Jelly.**

Take four calves' feet, wash and clean them carefully and put them in a saucepan with three quarts of cold water and a little salt; boil them down until reduced to half the quantity, then strain through a colander. When quite cold remove all the fat carefully, then put this jelly into a perfectly clean saucepan, adding sugar and sherry or Madeira wine to the taste, the rind of two fresh lemons peeled *thinly*, with their juice, and a small wineglassful of best brandy; let these simmer thoroughly for five minutes, then add the whites of five eggs beaten up with their shells, and stir constantly until it boils; let it boil slowly for twenty minutes, when it may be set aside ten or fifteen minutes to settle, after which it can be poured

through a strainer or jelly bag into moulds. It need not be stirred after it begins to boil, being careful not to have it over too strong a fire.

A valuable article in convalescence.

**Carrageen Moss.**

(See *Irish Moss*.)

**Candle.**

Mix two spoonfuls of oatmeal in a quart of water, with a little lemon-peel thinly sliced; let it boil half an hour, stirring frequently, then strain and add sugar to the taste, a glass of white wine, and a little grated nutmeg.

A slightly stimulating and nutritious drink.

**Chicken Broth.**

Clean carefully a chicken weighing about one pound—an old one is the best for the purpose—if too heavy, take half, crack the bones in several places, add a little salt and put over the fire in a saucepan with a quart of water; a spoonful of rice may be added; boil very slowly for two hours, skimming it well and keeping the vessel tightly covered. Just before using, a little chopped parsley may be added.

**Chicken Jelly.**

After washing and cleaning a chicken break all the bones, put it into a stone jar closely covered, set the jar into a kettle of boiling water, keep it boiling three hours, strain, and season with salt and a very little mace, if desired. Replace the chicken in the jar, and boil again; it will produce as much jelly as before.

**Chicken Panada.**

Boil a chicken in a quart of water until nearly done, then take off the skin, cut the meat off when cold, and

put into a marble mortar if convenient; if not, roll it with a rolling pin and mix to a paste with a little of the water it was boiled in; season with salt and a little grated nutmeg; simmer gently for a few minutes to the desired consistence. It should be such as can be easily drunk, though reasonably thick.

A very nourishing article of diet in small bulk.

#### **Chicken Tea.**

Take the thigh and leg of a chicken, put in a covered saucepan with a pint of cold water, set it over the fire to simmer for twenty minutes, skim it well, add a little salt, and strain it when it is ready for use. A piece of toast bread cut in small pieces, with some of the boiling tea poured over it, is quite nutritious and palatable.

#### **Cracker Panada.**

(See *Panada*, *Cracker*.)

#### **Crackers, Soaked.**

(See *Toast*, *French*.)

#### **Cream of Tartar Water (Imperial).**

Pour a pint of boiling water over the thin peel of half a lemon, cover closely, let it stand for five minutes, then stir in a teaspoonful of cream of tartar; when quite cold sweeten to the taste.

A refrigerant and diuretic drink.

#### **Cream of Tartar Whey.**

Stir a large teaspoonful of cream of tartar into a pint of boiling milk, and strain.

A refrigerant and diuretic drink, made more palatable by the addition of sugar.

**Egg Brandy.**

Rub the yolks of two eggs with half an ounce of loaf sugar, and add four ounces each of brandy and cinnamon water.

A restorative and stimulant in doses of half a wineglassful to a wineglassful, in the sinking stage of typhus and other adynamic fevers.

**Egg Broth.**

Take a tablespoonful of white sugar and the yolk of one egg, beat them well together, then pour on it, stirring constantly, half a pint of boiling sweet milk or water; add a tablespoonful of best brandy and a little grated nutmeg.

A still more nutritious broth may be made by stewing two ounces of well-washed pearl sago in half a pint of water, until it is tender and very thick; mixing with it the yolks of four fresh eggs, well beaten with half a pint of good boiling cream; mix the whole carefully into a quart of boiling beef-tea.

Useful in lingering convalescence, after acute disease.

**Egg Flip.**

Beat well together the yolks of four fresh eggs and the whites of two with two tablespoonfuls of white sugar, pour in boiling water, a little at a time until you have added a quart, finally throw in two tumblers of cognac brandy and one of old Jamaica rum. Wine may be used if preferred.

**Egg Nogg.**

Take the yellow of four eggs and three tablespoonfuls of pulverized sugar, and beat them to a cream, add a little nutmeg and beat well together; then mix in two ounces

of the best brandy and half a wineglass of Madeira wine; when this is well mixed, stir in a pint and a half of rich milk; have ready the whites of the eggs beaten to a stiff froth, and beat them in the mixture—when it is ready for use.

This preparation is not likely to cause headache, and is nourishing to the debilitated or consumptive.

#### **Flaxseed Tea.**

Pour a pint of boiling water over an ounce of whole flaxseed and quarter of an ounce of bruised liquorice root; cover lightly, digest for three or four hours near a fire, and strain through linen. Flavor with lemon if necessary.

A demulcent drink in pulmonary and urinary affections.

#### **Flour Ball, or Flour, Boiled.**

Take one quart of good flour; tie it up in a pudding-bag so tightly as to make a firm, solid mass; put it into a pot of boiling water early in the morning, and let it boil until bedtime. Then take it out and let it dry. In the morning, peel off from the surface and throw away the thin rind of dough, and, with a nutmeg-grater, grate down the hard dry mass into a powder. Of this from one to three teaspoonfuls may be used, by first rubbing it into a paste with a little milk, then adding it to about a pint of milk, and, finally, by bringing the whole to just the boiling point. It must be given through a nursing-bottle.

Useful in irritability of the stomach and bowels, and in dysentery and diarrhoea. Recommended for children by a committee of the Obstetrical Society of Philadelphia.

An excellent food for children who are costive may be

made by using bran-meal or unbolted flour instead of the white flour, preparing it as above directed.

**Flour Caudle.**

Mix a tablespoonful of flour with about five tablespoonfuls of water; set on the fire an equal quantity of new milk, slightly sweetened, and let it boil; pour it gradually over the flour and water; let them boil together for twenty minutes, constantly stirring.

Useful for infants with weak condition of the bowels.

**Fruit Drinks.**

Cherries, currants, or raspberries may be used. Put the fruit in a jar and set in a saucepan of water over the fire, let the water boil slowly until the fruit in the jar is well broken, giving out its juice freely; then pour through a strainer or jelly-bag, slightly pressing the fruit.

This juice sweetened and iced makes a pleasant cooling drink.

**Goat's Milk (Artificial).**

Boil an ounce of fresh suet, cut into small pieces, and tied in a roomy muslin bag, in a quart of milk, in which is dissolved a quarter of an ounce of white sugar candy.

Useful in the emaciation of scrofula and phthisis, and for infants raised with a spoon.

**Gruel.**

Mix a small tablespoonful of fine oatmeal or groats in two tablespoonfuls of cold water, add a pint of boiling water and a little salt, boil thirty minutes, stirring frequently. Sugar and nutmeg may be used, as also a small piece of butter.

Or, mix two spoonfuls of oatmeal in a little milk, stir this into a pint of boiling water. Simmer thirty minutes,

stirring frequently; strain, and add a little wine or brandy.

Gruel may also be made of fine grits or hominy, as follows: Take two or three tablespoonfuls of hominy after being boiled soft, rub well with butter until quite light, mixing in a half pint of boiled milk slowly to prevent the hominy becoming lumpy. Strain through a sieve or piece of muslin, then boil it, stirring well. Either sugar and nutmeg or salt can be used according to taste. Serve hot. Rice can be used instead of the grits, and prepared in the same way.

#### **Gum Water.**

This may be made simply by dissolving by maceration half an ounce or an ounce of gum Arabic, previously washed with water, in a quart of water, and adding lemon-peel to impart a flavor; or, by pouring a quart of boiling water on a mixture of quarter of a pound of white gum Arabic, the same quantity of rock candy, and a large thinly sliced lemon, constantly stirring, and kept in a warm place until the gum is dissolved.

A pleasant demulcent drink.

#### **Ice for the Sick Room (to preserve).**

Cut a piece of flannel, about eight inches square, and secure it by ligature around the mouth of an ordinary tumbler, so as to leave a cup shaped depression of flannel within the tumbler to about half its depth. In such flannel cup, ice may be preserved for many hours, and still longer if a piece of flannel three or four inches square be loosely laid over the ice-cup. Cheap, open mesh flannel is preferable, as the water easily drains through it, and thus keeps the ice quite dry.

**Iceland Moss.**

(See *Irish Moss*.)

**Imperial Drink.**

(See *Cream of Tartar Water*.)

**Invalid's Lunch.**

Put a layer of bread crumbs and a layer of jelly alternately in a tumbler until half full, then fill the tumbler with milk. Currant jelly or any slightly acid jelly is preferred.

**Irish or Carrageen Moss.**

Wash carefully half an ounce of moss in cold water, then put in a quart of water, boil gently for fifteen minutes, or until the consistence of warm jelly; strain and sweeten, or flavor with lemon or white wine. Milk may be used instead of water, by which a more nourishing liquid is obtained.

*Iceland moss* may be similarly prepared.

A nourishing demulcent article of diet.

**Lemonade.**

Slice a lemon thinly and put into a jug, with two ounces of white sugar, pour over them one pint of boiling water, cover closely and digest until cold, when the liquid may be strained or poured off.

**Lemonade Jelly.**

Slice very thinly three fresh lemons and two Seville oranges, pour over them a pint of boiling water, cover closely for half an hour; while the orange and lemon are steeping have one and a half ounces of isinglass soaking in half a cup of cold water; when quite soft put it in a porcelain-lined saucepan and pour over it the orange,



lemon, and water; let it simmer for fifteen minutes, stir in two tablespoonfuls of white sugar and half a pint of good wine; let it simmer two minutes, and strain through jelly-strainer or bag.

**Lemon-Peel Water.**

Pare the rind from a lemon, being careful not to use any of the white or inner part of the rind. Put the peelings in a jug, and pour over them a pint of boiling water; cover closely, and when quite cold pour off the liquid, and add a tablespoonful of powdered white sugar. A tablespoonful of good brandy or sherry may be added.

A pleasant, cooling, astringent drink, when iced; given in diarrhœa, etc.

**Liebig's Food for Infants.**

(See *Dietetic Treatment of Infants*, p. 202.)

**Macaroni and Milk.**

Soak two or three pieces of macaroni in a pint of warm milk for twenty minutes, or until soft; add a little salt and boil gently for twenty minutes or a half hour. May be flavored with cinnamon or nutmeg.

**Macaroni Pudding.**

Simmer two ounces of carefully washed macaroni in a pint of milk and a teacupful of water. Beat up the yolks of three eggs and the white of one egg with an ounce of white sugar, and half a pint of milk, and a few drops of essence of lemon; when the macaroni is quite tender add the mixture and bake in a slow oven.

An agreeable article in convalescence.

**Macaroni Soup.**

Boil a quart of beef-tea until reduced to two-thirds, add two ounces of well-cooked macaroni, and boil down to a pint. Season to the taste.

A pleasant soup for convalescents.

**Marshmallow Tea.**

Add two ounces of dried marshmallow root and one ounce of Sultana raisins, to two and a half pints of boiling water; boil slowly until reduced one-half. Strain without pressure.

An excellent demulcent drink in renal disease, with a tendency to gravel.

**Milk and Egg.**

Add a pint of good milk to a well-beaten fresh egg, a pint of cold water, and salt to make it palatable; let it come to a boil quickly (if heated slowly it is apt to curd, and if so it is useless), stirring all the time; as soon as it comes to a boil it is cooked sufficiently.

Can be given in all forms of sickness of the stomach, and an admirable drink for infants suffering with choleraic diarrhoea.

**Milk Lemonade.**

Dissolve half a pound of loaf sugar in a pint of boiling water, add a teacupful of good sherry wine and the same quantity of lemon juice freshly pressed from the fruit; mix well, then add a pint of cold milk; stir well together and pass through jelly-strainer or bag without pressure.

**Milk and Soda Water.**

Heat a teacupful of milk almost to boiling, dissolve in it a teaspoonful of white sugar; pour into a large tumbler, and add two-thirds of a bottle of good soda water.

Useful in acid conditions of the stomach, when milk alone will disagree.

**Milk Porridge.**

Stir two tablespoonfuls of oatmeal into a pint of milk, then stir quickly into a pint of boiling water, and boil until it thickens, stirring constantly.

**Milk Punch.**

Mix well together a tablespoonful of white sugar, two tablespoonfuls of water, a wineglassful of good brandy, and half a wineglassful of rum ; pour in a large tumbler, add some small pieces of ice, and fill the tumbler with milk ; stir well and grate a little nutmeg over the top.

**Mint Tea.**

Put a few mint leaves (fresh or dried) in a pint of boiling water, cover and stand near the fire for an hour.

To be used in febrile and other complaints. When made of the fresh leaves it relieves vomiting.

**Mustard Whey.**

Boil one quart of milk with an ounce of bruised mustard seeds, until the milk curdles ; strain to separate the whey.

Useful in dropsy as a urinary stimulant.

**Mutton Broth, or Tea.**

Take three or four ribs out of the loin of a piece of mutton, remove all the fat, break the bones and put into a covered saucepan with a quart of cold water, and a little salt ; cook slowly for an hour and a half or two hours, being careful to skim off all the fat which may rise ; pour off the broth from the pieces of mutton, and it is ready

for use. A tablespoonful of rice may be added half an hour before the broth is removed from the fire.

This is an agreeable change after a patient becomes tired of beef-tea.

#### **Oatmeal Gruel.**

(See *Gruel*.)

#### **Oatmeal Porridge.**

Mix two tablespoonfuls of oatmeal with three tablespoonfuls of cold water; stir into a pint of boiling water; boil for three-quarters of an hour. To be eaten with a little salt and butter, or sugar and milk.

Good to relieve constipation, where there is no dyspeptic tendency.

#### **Orange Jelly.**

Melt a quarter of a pound of sugar in some hot water, and pour it over five ounces of orange juice previously pressed from fine ripe fruit. In the mean time have three-quarters of an ounce of gelatine melted in a little water, and add to the syrup; boil for two minutes.

#### **Orange Water.**

Pour a quart of water over the juice of six oranges and two lemons; cover for ten minutes, sweeten, and serve iced.

A pleasant, cooling drink.

#### **Oyster Soup.**

Drain one pint of oysters through a colander for five minutes; remove the liquor, and then pour over them one pint of boiling water, which must be thrown aside. Add to the liquor already drained a pint of boiling water, and put over the fire in a porcelain-lined saucepan, boil until all the scum has risen and been skimmed off; then

add half a pint of fresh milk, one water cracker rolled to a powder, a piece of butter, and a little salt and pepper. Boil ten minutes, and just before the soup is to be served, turn in the oysters from the colander and let them scald for three minutes.

Oysters cooked in this way are not apt to give discomfort, and are therefore adapted to invalids.

**Panada, Bread.**

Put two slices of stale bread in a covered bowl with a little more than enough hot water to cover them, and let them soak for ten or fifteen minutes, then add two spoonfuls of sweet milk and a little white sugar; boil for ten minutes, stirring constantly.

*Five minute panada* may be made by mixing in a coffee cup of hot water, a glass of wine, a dessertspoonful of white sugar, and a little nutmeg. Set over the fire to boil. Have ready some grated bread crumbs, and the moment the mixture boils, stir the crumbs in rapidly, and continue stirring until it has boiled to a proper thickness to drink.

**Panada, Chicken.**

(See *Chicken Panada.*)

**Panada, Cracker.**

Break three or four water crackers (Trenton crackers are the best) in a bowl with half a pint of boiling water, cover and let stand until the crackers are quite soft, then serve with a little sugar and grated nutmeg. A dessertspoonful of wine may be added.

**Quince Water.**

Take the cores of six or eight quinces or a few slices of dried quinces and pour over them a pint of boiling

water, simmer for ten minutes, cover tightly, and when cold, strain.

An acceptable mucilaginous drink.

**Raspberry Vinegar.**

Mix a quart of raspberries with a quart of best cider vinegar, let them stand for a week, stirring occasionally, then add one pound of loaf-sugar, boil slowly twenty minutes, strain and bottle.

**Raw Beef.**

(See *Beef, Raw.*)

**Rennet Whey.**

Steep a piece of rennet in a pint of boiling water or less, according to the size of the rennet; separate the fluid, and stir a dessertspoonful of it into a quart of milk; cover with a cloth, and place near the fire until it curds. Divide the curd with a spoon to separate the whey, which should be quite clear, and of a sweetish taste.

An excellent diluent in febrile affections.

**Restorative Soup.**

The following modification of Liebig's formula for beef-tea is suggested by Dr. Tanner. Chop finely half a pound of fresh beef or chicken, add four fluidounces of soft or distilled water, two or three drops of pure hydrochloric acid, fifteen or thirty grains of common salt, and stir well together. After two hours the whole is to be thrown on a hair sieve, and the fluid allowed to pass through with slight pressure. On the residue in the sieve pour slowly one ounce of distilled water, and let it run through while pressing the meat. About five fluidounces of cold red juice will thus be obtained, having a pleasant soup taste, of which a wineglassful can be taken

at pleasure. It must not be warmed, as the albuminous portion will be deposited. Spice or a little claret may be added, if desirable to modify the taste. If the acid be contraindicated, the soup may be prepared by merely soaking the minced meat in plain distilled water. The minced meat may also be given alone, one part to two parts of sugar, to children.

A valuable dietetic preparation in continued fever, dysentery, and adynamic conditions generally.

**Rice (Baked).**

Prepare as in boiled rice, and when nicely done, place in the bottom of a baking dish, mix with it a small piece of butter, salt to the taste, a small teacupful of milk, and one egg well beaten. Put in the oven and let it bake until nicely browned.

**Rice (Boiled).**

To a half a teacupful of rice (well washed and picked), allow half a pint of water and a little salt; put it over the fire and let it boil rapidly ten minutes, then drain through a colander. Before removing from the colander pour a little cold water over it, let it drain for a minute, and return to the saucepan with only the water which may adhere to the grains; cover, and set on the oven door or near the fire, where it may swell and dry.

**Rice Caudle.**

Pour one quart of boiling water over a teacupful of rice which has been well washed and picked, add a little salt, and cook slowly for an hour. Beat the yolk of an egg with a tablespoonful of white sugar to a cream. Pour off the water and stir *slowly* the egg and sugar into the rice; cook for five minutes, then pour into a bowl, and

grate a little nutmeg over it. A glass of sherry wine may be added.

#### **Rice Jelly.**

Wash and pick carefully a quarter of a pound of rice, put it in a porcelain-lined pan, with one quart of water, a small piece of cinnamon, and a half pound of loaf sugar, or not, according to fancy; let it boil one hour, pass through a sieve, and when cold it will be a firm jelly.

Excellent in dyspepsia and irritable conditions of the stomach.

#### **Rice Pudding.**

Thoroughly wash a coffee cup of good rice, pour over it a pint of water and let it simmer until the grains are well softened, then drain; put the rice in a pudding dish and pour over it one quart of new milk, a small piece of butter, a little salt, and grated nutmeg or cinnamon. Bake thirty minutes, or until the rice is well done. Stir frequently while baking.

#### **Rice Water.**

Pick and wash one ounce of rice in cold water, then put in a quart of water and set near the fire, where it may soak and be kept warm without cooking, for two hours, then boil slowly for one hour, until reduced to a pint, and strain; add a little salt. A pint or half a pint of milk added to the rice water, before it is taken from the fire, renders it more nourishing.

An excellent drink in diarrhoea, dysentery, and irritable conditions of the alimentary canal, especially in children.

Sago, tapioca, barley, or cracked corn can be prepared in the same manner.



**Sago.**

Cleanse a half teacupful of sago by washing carefully, soak two or three hours in cold water, then put it over the fire in the same water, and simmer until the grains become quite clear; it may be sweetened slightly, and a little orange or lemon juice added.

**Sago Jelly.**

Wash carefully an ounce of sago, put it to soak for four or five hours in a half pint of cold water, then add half a pint of hot water, a little salt, half an ounce of sugar, and a little lemon peel or cinnamon; boil gently fifteen or twenty minutes, stirring constantly. Just before removing from the fire add a tablespoonful of port or sherry wine. Serve hot, or pour into a mould to cool.

**Sago Posset.**

Boil two ounces of sago in a quart of water until it is the consistence of mucilage. Then mix a teaspoonful of tincture of ginger, with half an ounce of white sugar, and a half pint of sherry wine; add this to the sago and boil for five minutes.

Excellent in debility after acute non-inflammatory diseases, in wineglassful doses repeated.

**Sippets.**

Put three or four small square pieces of bread on a very hot plate, and pour over them some beef or mutton gravy from which the fat has been well skimmed; sprinkle a little salt over them. The bread may be toasted, if preferred.

Very nutritious when meat is not acceptable to the stomach.

**Slippery Elm Bark Jelly.**

Stir four tablespoonfuls of ground bark into a quart of cold water; let it stand all night; in the morning strain and add the juice of one lemon; simmer *gently* twenty minutes, then sweeten, and pour in a mould to cool and harden.

**Slippery Elm Tea.**

Add one pint of boiling water to one ounce of slippery elm bark; cover and stand near the fire for about three hours, and strain.

A nutritious demulcent, useful in renal, intestinal, and other affections.

**Staff of Old Age (Consomme).**

Make a beef broth by taking two pounds of beef from the leg, round, or chuck; wash well, cut in pieces and put on to boil in three quarts of cold water; while boiling skim frequently, and when reduced to one quart take from the pot and strain, after which return to the digester or pot with a few thin slices of onion, half a pound of lean beef, chopped finely, and well mixed with three raw eggs; beat all thoroughly with the broth, which is to be returned to the fire, and boiled for about half an hour, or until perfectly clear.

Nutritious and healthful, especially to old people with feeble masticatory powers.

**Tamarind Whey.**

Two tablespoonfuls of tamarinds stirred into a pint of boiling milk; boil ten minutes and strain.

Refrigerant and slightly laxative.

**Tansy Water.**

Take a dozen leaves of fresh tansy, wash them and pour over them a pint of cold water, cover closely and let stand in a cool place for three or four hours, when it is ready for use. Sage may be used if preferred to tansy.

Refreshing in febrile affections.

**Tapioca.**

Take two tablespoonfuls of the best tapioca; after washing carefully, soak it in fresh water over-night; add a little salt, a pint of water or milk (the latter being more nutritious); simmer until quite soft, stirring frequently, if milk is used, to keep from scorching. When done pour into a bowl, and stir while cooling; sugar, a little nutmeg, and a spoonful of wine may then be added.

**Tapioca Pudding.**

Beat the yolks of two eggs with half an ounce of sugar, and stir into a pint of tapioca mucilage, made with milk, as directed above, and bake in a slow oven.

Useful in convalescence. Wine may be added if not contraindicated.

**Toast, French.**

Take half a dozen water crackers, pour over them enough boiling water to just cover them. Cover them tightly, and while they are soaking simmer a pint of milk with a little salt and a small piece of butter, and when the crackers are quite soft pour the hot milk over them. A little grated nutmeg may be added.

**Toast Jelly.**

Cut a breakfast roll into thin slices, toast a light brown, and boil gently in a pint and a half of water until it jellies, strain and flavor with a little wine and nutmeg.

**Toast Water.**

Toast a slice of stale bread quite brown, but do not scorch; while hot put it into a pitcher and pour over it a pint of boiling water; cover tightly, and when cool pour off the liquid. A little orange or lemon put in the pitcher gives a pleasant flavor.

A valuable cooling drink in febrile affections.

**Veal Tea.**

To be prepared as beef-tea, substituting the veal for beef. It requires, however, much longer cooking.

**Vegetable Broth.**

Slice a turnip, two or three pared potatoes, a small carrot, and a stalk of celery in a quart of boiling water; cook until the vegetables are well done, then add a small piece of butter and a little salt. Toast a slice of bread, butter it, put in a bowl and pour the soup over it.

**Vermicelli Pudding.**

(See *Macaroni Pudding*.)

**Whey.**

Curdle warm milk with rennet, and strain off the liquid, or put into boiling milk as much lemon-juice or cider as will curdle it and make it clear; then pour off, add a little hot water, and sweeten if desired.

A useful diuretic drink in febrile complaints.

**Wine, Mulled.**

A pint of wine, half a pint of water, and a teaspoonful of allspice, boil together for three minutes. Beat three eggs with a large tablespoonful of white sugar; pour the boiling wine on the eggs, stirring all the time. If the eggs are poured into the wine, they are apt to curdle.

**Wine Whey.**

Boil a pint of new milk, while boiling pour in a small tumbler of white wine, put it over the fire to boil again, being careful not to stir it, and as soon as it boils remove and set aside until the curd settles, then pour off the clear whey. If too strong add a little water.

Useful in low fevers or those requiring a moderate degree of stimulation.

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**SPECIAL FORMS OF DIET.**

Under this head might be included a consideration of such dietetic hints and precepts as are applicable to the prevention and cure of special diseases. The principles governing the employment of articles of diet appropriate to such conditions are generally, however, sufficiently intelligible to the physician, and it is not difficult for him to decide, in inflammatory and other conditions, what should be interdicted and what allowed. His own medical knowledge, added to the results of the personal experience of the patient, will usually be a sufficient guide to both as to the quality and quantity of the food to be taken. So much benefit, however, has been derived from the practice of strict dietetic regulations in such affections as diabetes, obesity, etc., that the reproduction of rules here will possibly be of service to the practitioner in similar cases.

**Dietary for the Diabetic.<sup>1</sup>**

As diabetes mellitus is a condition attended with want of assimilative power over the amylaceous and saccharine

<sup>1</sup> F. W. Pavy, *Treatise on Food and Dietetics*, Philadelphia, 1874.

principles of alimentary substances, such a diet must be prescribed as will, as far as possible, exclude such principles. The following table, although containing several dietetic articles of purely English employment, is reproduced in its entirety, being an especially valuable guide in this disease.

*He may eat*—Butcher's meat of all kinds, except liver, ham, bacon, or other smoked, salted, dried, or cured meats, poultry, game, shell-fish and fish of all kinds, fresh, salted, or cured, animal soups, not thickened, beef-tea, and broths; the almond, bran, or gluten substitute for ordinary bread;<sup>1</sup> eggs dressed in any way; cheese, cream cheese, butter, cream, greens, spinach, turnip tops, turnips,<sup>2</sup> French beans,<sup>2</sup> Brussels sprouts,<sup>2</sup> cauliflower,<sup>2</sup> broccoli,<sup>2</sup> cabbage,<sup>2</sup> asparagus,<sup>2</sup> seakale,<sup>2</sup> vegetable marrow,<sup>2</sup> mushrooms, water-cress, mustard and cress, cucumber, lettuce, endive, radishes, celery, vinegar, oil, pickles, jelly flavored, but not sweetened, savory jelly, blanc mange made with cream and not milk, custard made without sugar, nuts of any description, except chestnuts, olives.

*He must avoid eating*—Sugar in any form, wheaten bread and ordinary biscuits of all kinds, rice, arrowroot, sago, tapioca, macaroni, vermicelli, potatoes, carrots, parsnips, beet-root, peas, Spanish onions, pastry and puddings of all kinds, fruits of all kinds, fresh and preserved.

*He may drink*—Tea, coffee, cocoa from nibs, dry sherry, claret, dry Sauterne, Burgundy, Chablis, hock, brandy, and spirits that have not been sweetened, soda water, Burton bitter ale, in moderate quantity.

<sup>1</sup> See Bran-loaf, p. 277.

<sup>2</sup> May only be eaten in moderate quantity, and should be boiled in a large quantity of water.

*He must avoid drinking*—Milk, except sparingly, sweet ales, mild and old, porter and stout, cider, all sweet wines, sparkling wines, port wine, unless sparingly, liqueurs.

**Dietetic Rules for reducing Weight ("Bantingism").**

Although the general principles on which these rules are founded are not new, they have attained greater prominence, within a few years past, from the publication of the experience of one who had successfully subjected himself to their rigid exactions, under the advice of a medical practitioner of London.<sup>1</sup> The mainspring of the system is the avoidance of all starchy and saccharine matters, such as bread, butter, milk, sugar, potatoes, beer, etc., all of which have a tendency, from their chemical composition, to create fat. In elucidation of this dietary plan, the following general bill of fare is offered, similar to that under the use of which a weight of 200 pounds was, in the instance cited, reduced in a year to nearly 150.

**BILL OF FARE.**

*For Breakfast.*—Four or five ounces of beef, mutton, kidneys, broiled fish, bacon, or cold meat of any kind except pork and veal, which are not easily digested; a large cup of tea (without milk or sugar); a little biscuit, or one ounce of dry toast, brown bread, or ordinary bread crust; an egg, if not hard boiled.

*For Dinner.*—Five or six ounces of any fish except salmon, herring, and eels (owing to their oily nature), any meat except pork and veal; green vegetables, and any vegetable except potatoes, parsnips, turnips, beets, and carrots; one ounce of dry toast; fruit out of a pud-

<sup>1</sup> Wm. Banting, *Lett. on Corpulence*. 11th edition. Philadelphia, 1876.

ding; any kind of poultry or game, and two or three glasses of good claret, sherry, or Madeira; Champagne, port, and beer being forbidden.

*For Tea.*—Two or three ounces of fruit, a rusk or two, and a cup of tea without milk or sugar. A little coffee may be permitted.

*For Supper.*—Three or four ounces of meat or fish, similar to dinner, with a glass or two of claret.

*For Nightcap,* if required, a tumbler of grog (gin, whisky, or brandy, without sugar), or a glass or two of claret or sherry.

The latter portion of the bill of fare will doubtless be omitted in the majority of instances. Indeed, the items here indicated should not be blindly followed without the exercise of a watchful care, lest, in individual cases, this systematic reduction should be followed with unfavorable results to the general health. The principles which underlie the construction of such an itemized list are, however, correct, and should govern the practitioner when consulted in cases of corpulency.

It may be added that in the case alluded to a draught was also ordered to be taken, once or twice daily, on an empty stomach, containing a drachm of the aromatic spirits of ammonia with ten grains of carbonate of magnesium, to obviate the induction of the uric acid diathesis as a consequence of the restricted diet.



## RULES FOR TESTING AND DISINFECTING IMPURE DRINKING WATER.

The purity of the water supply of towns and cities, and its effects on the health of individuals and of communities, are matters of vital import to all classes and all professions, but the medical man is supposed to be especially familiar with the tests for its impurities, and with the agents that are best calculated to disinfect it. Such knowledge on his part will generally place him in the foremost rank of sanitary reformers, and enable him at times to be of inestimable service in the hygienic improvement of the locality in which he resides.

### Tests for Impurities in Water.

A full examination of the character of a potable water as to its organic constituents is, perhaps, one of the most difficult problems in the ordinary run of analytical chemistry.<sup>1</sup> There is organic matter decomposed, decomposing, and ready to be decomposed, to be looked for; a discrimination to be made between organic matter of all grades, from the perfectly inert up to the pestilence-producing; and, more, these frequently can only be recognized by the products of decomposition, usually the same from all classes mentioned.

The tests described are all in use by experts in water-analyses; they have been altered, in some cases, in the details, so that they can be applied by any physician with

<sup>1</sup> Dr. Chas. McIntyre on the Detection of Organic Matter in Drinking Water,—*Phila. Med. Times*, March 6, 1875, from which excellent paper most of these facts are obtained.

an ordinary amount of apparatus. They aim at qualitative, not quantitative determination, and can, therefore, be used on ordinary occasions, while the latter would require the special apparatus of a chemical laboratory with the skill of a professed chemist.

We may have organic material—

I. As to its derivation: *animal*, or *vegetable*.

II. As to its condition: *not decomposed*, or *decomposed*.

a. If not decomposed, either (1) in the same form as it exists in the organism, or (2) changed into some complex organic substance.

b. If decomposed, it may exhibit any of the products of decomposition down to the purely inorganic—*e. g.*, carbon dioxide, nitric acid—and these may be present along with organic material, which may escape detection.

III. As to its effect: *deleterious*, or *harmless*.

If the organic material is of animal origin, the nitrogen compounds will ordinarily be more abundant. These are supposed to exert the greatest influence in causing the water to be unwholesome. The presence of ammonia, or even, perhaps, of albuminoid substances (not readily putrescible), does not, however, of necessity render the water unfit for domestic purposes, or even prove the presence of recent organic material. Unfortunately, most of the methods will not enable us to tell of the source of the organic material, and in doubtful cases it may be difficult to decide as to the condition of the water.

TESTS. 1. *For Organic Matter*.—If a quantity (f3viiij) of water is evaporated carefully to dryness in a clean porcelain or glass vessel, and then heated gently, the blackening of the residue will indicate the presence of the more stable organic compounds, which will all disappear by a further application of the heat with access of air. If

during this latter operation there is any deflagration or rapid combustion, it indicates the presence of nitrates in the water. A very rough approximation of the amount of this organic matter can be made by weighing when dry, and again after it has been burned off. There are very few waters so free from organic matter as not to leave a blackened residue, while at the same time it would be possible to have a water rich in organic material which would leave little or no char. This test, then, is of use when the amount left is greatly in excess of the char from comparatively pure water.

Allow another portion of the water to stand in a warm place, exposed to the light, for several days. Should it become putrid or show the presence of animal or vegetable growths, either to the naked eye or by the aid of the microscope, there should be grave doubts as to the fitness of the water for domestic purposes. It is asserted that at times organic matter is contained in water in such a condition as not to respond to the ordinary reagents until after it has undergone some decomposition. Consequently, in a suspected water, if no reactions can be obtained in the fresh water, it would be advisable to let a portion stand as above, and then test.

The presence of ammonia, nitrous and nitric acids, any or all, indicates the presence of nitrogen in the water. It is possible, however, for this nitrogen to have its origin in inert organic material, or even to have an inorganic origin, and, hence, exercise no deleterious effect upon the water. Their presence is suspicious, and should always be looked for.

In many cases the organic material is readily oxidized by means of potassium permanganate. Render the water slightly acid by means of sulphuric acid, and drop in a few drops of a solution of potassium permanganate; the

solution becomes decolorized, owing to the permanganate giving up its oxygen for the oxidation of the organic material. This test, while not a reliable one when used with so few precautions, may, nevertheless, act as one witness among many to prove the character of the water.

A simple plan for testing for organic impurities has also been suggested<sup>1</sup> by making a solution of chemically pure permanganate of potassium, gr. viij to f3j of distilled water. Into a half pint of the impure or suspected water in a goblet or tumbler, put one drop of the red solution; if the red tint disappears from the glassful in half an hour, add more of the solution. For every drop that loses its color in the half pint there will be found to be from one and a half to two grains of putrid organic matter in the gallon of water.

2. *Test for Ammonia*.—Nessler's reagent is perhaps the best test for ammonia. It is prepared by dissolving gr. xxxv of iodide of potassium in 3iij 3vj of distilled water; to which add a cold concentrated solution of mercuric chloride until the mercuric iodide at first forms, then dissolves by agitation in the solution, and at length produces a very small permanent precipitate; 100 grains of caustic potassa are next dissolved in 3vj 3ij of distilled water; mix the solutions, and add distilled water to make 3xv 3v. This added to water containing .03 of a grain of ammonia to the gallon will give a yellow color; a larger amount of ammonia a brownish-yellow color.<sup>2</sup>

This reagent may be extemporaneously prepared by adding to a solution of potassium iodide (1 pint of salt to 20 pints of water) a solution (1 to 16) of mercuric chloride (corrosive sublimate) until a permanent precipi-

<sup>1</sup> Report of the New York Board of Health for 1873, p. 574.

<sup>2</sup> Transactions of the Medical Society of the State of Pennsylvania, vol. x. p. 19.

tate is produced. Then add about twice the volume of liquor potassæ, let stand for a few days, and decant from the sediment. This will be delicate enough to detect an exceedingly small quantity of ammonia; a brownish precipitate or coloration being formed, depending on the amount of ammonia present. If there is much testing to be done, the reagent had better be prepared according to the formula.

3. *Test for Nitrous Acid.*—Nitrous acid is readily detected by its power to liberate iodine from potassium iodide. Prepare some starch paste, add about one-eighth the volume of the solution of potassium iodide, acidulate the water with hydrochloric, or, preferably, sulphuric acid, to liberate the nitrous acid if combined as a nitrite, and then add the mixture of starch paste and potassium iodide. The immediate formation of blue iodide of starch will indicate the presence of nitrous acid. Pure acids and clean vessels must be used to insure accuracy.

4. *Test for Nitric Acid.*—To test for this acid, the unignited residue had better be employed. Dissolve some morphia, or, better still, brucia, in a drop of sulphuric acid, on a piece of white porcelain; it should develop no color; if now a few pieces of the solid residue be added, the presence of nitric acid will be shown by a rose-red coloration in the former instance, or a deep blood-red if brucia has been used.

5. *Test for Sewage-matter.*—When the water may be contaminated with sewer-refuse, there is a large increase of the alkaline salts, notably common salt—sodium chloride—the chlorine of which can readily be detected after rendering it strongly acid with *pure* nitric acid, by a solution of silver nitrate, a white curdy precipitate being formed. Since this salt is normal in small quantities in

most waters, the resulting precipitate should be quite decided to indicate any sewage-matter.

6. *Test for Albuminoid Matters.*—This test, known as Chapman & Wanklyn's test,<sup>1</sup> requires more laboratory manipulation. It attempts to give us intelligence of animal matter while still in an albuminoid condition, and depends on the principle that a solution of caustic potash and potassium permanganate is able to cause the nitrogen of albuminoid substances to enter into combination with hydrogen and form ammonia, which then can be detected by Nessler's reagent. To apply the test, it is first necessary to remove all ammonia in the water, as well as urea, which readily changes into ammonia; this is done by distilling a portion of the water until portions of the distillate give no reaction with the Nessler solution; then add a strong solution of potassium hydrate and a solution of potassium permanganate; collect the distillate, and examine again for ammonia. Its presence indicates albuminoid material in the water.

#### **How to Disinfect Impure Drinking Water.**

To purify such water, if it must be used, drop in a solution of chemically pure permanganate of potassium, gr. viij to f3j of distilled water, until a slightly perceptible red tint remains in the water. This very weak solution of permanganate is not unwholesome; but for common purposes and among the poor it is better to depend upon the thorough boiling of impure water, if such water must be used. The permanganate quickly tests the presence of organic impurities. It destroys them by instantly oxidizing or burning them.

It is contended by some that recently calcined charcoal, well pulverized, is the only substance which can with im-

<sup>1</sup> Jour. Chem. Soc., xx. 445, 591.

purity be mingled with water in excess, without communicating taste or hurtful properties. It is usually placed in layers between clean gravel, or broken quartz, through which the water is filtered. The charcoal should be frequently renewed, for as its efficiency depends alone on its absorbent power, it becomes inert when saturated.

If water be boiled to deprive it of infectious germs and of odor, it should afterwards be exposed for a time to the air, to absorb again a portion of oxygen and carbonic acid.<sup>1</sup>

It has been found that  $\frac{1}{200000}$  of salicylic acid will keep river or pond water in casks perfectly fresh, and without unpleasant taste, for weeks. A plan has been suggested to prevent the decomposition of water on shipboard, by adding the acid in the proportion of one part to 200,000, by covering the bung-hole of the casks with cotton-wool steeped in salicylic acid, the preservation being effected by the filtration of the air.<sup>2</sup>

<sup>1</sup> S. Oakley Vander Poel, M.D., Transactions of the Med. Soc. of the State of New York for 1875, p. 233.

<sup>2</sup> British Medical Journal, February 20, 1875; Boston Med. and Surg. Journal, March 11, 1875.

# **HOW TO CONDUCT A POST-MORTEM EXAMINATION.**

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## HOW TO CONDUCT A POST-MORTEM EXAMINATION.

THE practitioner must so conduct these investigations as to leave behind no offensive traces of his work, and must avoid wounding in any way those whose susceptibilities at that time are particularly impressible. To insure a satisfactory performance of a post-mortem examination, certain preliminary arrangements are necessary.<sup>1</sup>

*What to Provide.*—The undertaker must have the body ready. The carpets must be thoroughly protected from injury from the dripping of fluids, discharges, etc. The family must provide hot and cold water, a waste bucket, and basins, sponges, bran, a small funnel, oil for the hands if necessary, or preferably collodion, which is also useful in gangrene, etc., a small water pitcher, towels, and rags. In order to label specimens for preservation, the operator should provide himself with slips of wood on which he can write with a lead pencil, as the lead is not acted on by the fluids.

*Instruments.*—Under ordinary circumstances, the physician will be able to perform a post-mortem examina-

<sup>1</sup> Many of the facts detailed in this chapter have been arranged and condensed from the following sources: R. Virchow, *A Description and Explanation of the Method of Performing Post-mortem Examinations in the Dead-house of the Berlin Charité Hospital*, translated by T. P. Smith, Philadelphia, 1877 (from *Med. Times and Gazette*, 1876); C. Heath, *Manual of Minor Surgery*, etc., Philadelphia, 1875; and manuscript notes of Lectures on Pathological Anatomy in Jefferson Medical College delivered by Dr. W. W. Keen, and kindly loaned by him.

tion satisfactorily if provided with a case of instruments containing two large knives, two small knives, a saw, rachitome, scissors, a hammer, forceps, needles and thread, and a pocket measure; or an ordinary dissecting case *plus* a saw, rachitome, hammer, needles and thread.

Important suggestions, however, as to instruments, have been made by Virchow for the more satisfactory performance of these operations.

The blade and handle of the ordinary dissection-knife are made by him thicker and broader; the anterior part of the blade rounded off, the very broad surface terminating with a considerable curve in the slightly projecting point, thus lengthening the cutting edge and diminishing the risk of pricking one's self or others. On the back part of the knife the blade is narrow and strong near its insertion, the handle flatter posteriorly, and much curved inwards from both edges, to lie more conveniently in the hand. In its original condition, before being ground down, the knife is twenty-three to twenty-four centimetres long, of which nine and a half belong to the blade. The incisions with this knife should be with a traction movement, rapid rather than forcible, to avoid crushing, as in the brain. Place the handle between the thumb and forefinger only, so that great pressure is impossible. If pressure be required, use a knife with a stronger handle than the ordinary cartilage knife, a thicker and more bulging blade, and a broader back, to which the forefinger or thumb may be conveniently applied; the handle made of two strong plates of wood or horn, one of them being applied to each side of a flat prolongation of the blade, reaching the entire length of the handle; the back of such a knife being sixteen millimetres broad, the free end of the handle flattened and broad. To sum up—the operator

requires a section knife for dissecting large viscera; a strong cartilage-knife for coarser work, such as dividing cartilages, large incisions through skin, muscles, joints, etc., and a dissecting knife for the finer parts, vessels, nerves, etc.

The operator should also have a bag for his instruments, or to carry away specimens for preservation. In the bag, he should carry oiled silk and tin seidlitz-powder boxes, and a bottle of Lugol's solution, to detect amyloid degeneration. In winter, the overcoat pocket will form a convenient receptacle for various articles. In medico-legal examinations, additional caution is necessary that clean glass jars be used. Sealing wax, a seal, and string should also be provided.

*What to Observe.*—In medico-legal cases special care must be exercised to ascertain three distinct points:—

1. Was the individual viable, and did he live?
2. If he has lived, how long has he been dead?
3. The cause of death.

In medical cases, the latter inquiry alone is necessary, together with

4. The pathology of the disease.

*Notes of Cases.*—In noting, on the instant, the appearances revealed, state the exact time of the examination, and how long after death it is made; enter only facts observed and not inferences. Measure everything; guess at nothing. If nothing abnormal be found in any organ, state the fact. If desirable, take specimens home for microscopic examination.

### **External Examination.**

Special care is needful even to the smallest particulars.<sup>1</sup>

1. *Position of the Body.*—It has a marked bearing as to question of violence and mode of death.

2. *Clothing.*—Important in relation to identity; if torn, it may prove violence. After and closer examination may detect spots of blood, or semen (rape), fecal matters in infanticide, etc.

3. *Condition of the subject as to putrefaction, etc.* Important as bearing on date and cause of death, or on identity. Even in case of advanced putrefaction, the examination must be conducted, for the hair, nails, teeth, lesions of the bones, arteries, foreign bodies, poisons, pregnancy, etc., afford data to guide judicial examinations.

4. *Age.*—In children recognized by extent of ossification, especially of the lower end of the femur, at the ninth foetal month.

5. *Sex.*—Not always easily determined, by reason of anomaly or putrefaction or destruction. The presence of the uterus, beard, breasts, parting of the hair, etc., will or may assist us.

6. *General Conformation, Constitution, Emaciation, etc.*—These have a bearing on previous state of health, identity, strength necessary for the crime, etc.

7. *Warmth* of various parts and *Rigor mortis* to be noted; cause of the latter may be coagulation of the muscular substance. If death is sudden it is delayed.

8. *Color of Skin*, white or negro. Hypostasis is not to be mistaken for congestion or violence. All livid spots

<sup>1</sup> Casper relates a case where the body was exhumed three times, the second time to determine about some cicatrices which had not been fully reported, and the third time to examine the teeth—these bearing on the identity.

should be cut into to see whether the blood be still in the vessels or effused into the tissues. Blood may even coagulate in a post-mortem cut. The skin may be discolored by Addison's disease, yellow fever, etc.<sup>1</sup>

9. *Anomalies* of all kinds, as cicatrices (from buboes, chancres, wounds), tattooed spots, herniæ, etc.; deficiency of members; ulcers, dirt or fecal matter on the body, abrasions, wounds, etc., even down to the *slightest* mark of a cord around the neck or other part, or even the trace of a ring having been worn.<sup>2</sup>

10. *Abrasions, Wounds, etc.*—If blood from them be on the person, it should be so stated. The size, exact position (measured), and nature of the wounds, etc., should be noted, whether incised, lacerated, contused, etc. Their direction and depth must be stated and compared with any instruments found anywhere that might be supposed to be the means of violence. Their internal lesions and connections must be investigated at a later stage of the examination.

11. Take up each region separately, and examine the *hair, teeth, mouth*, as to its contents of foreign body, fæces, etc.; *tongue*, as to the presence of acids, alkalies, etc.; *nose*, its condition, presence of foreign bodies, etc.; *eyes*, as to anomalies, color of iris, etc.; *vagina, rectum*, etc., for foreign bodies; *generative organs*, groins, etc., for evidence of anomalies and disease.

In *very young children and fœtuses*, other points must be examined, as the fontanelles, diameters of the head, which vary at different months; the eyes for the membrana capsulo-pupillaris, which disappears at the seventh

<sup>1</sup> Under the subject of Internal Examination (p. 318) will be found further remarks on coloration, etc.

<sup>2</sup> Casper gives a case in which a body was disinterred in order to see whether a ring had been worn, so that identity might be established.

month; the nails; ossification of various bones; the scrotum, for the presence or absence of the testicles,<sup>1</sup> etc.

### Internal Examination.

Usually we examine only the thorax, abdomen, and pelvis; the head and spine, if necessary. In medico-legal cases the examination should begin where we suspect the cause of death, and thence extend to other parts. If the subject be an infant and viable, the abdomen is first to be opened, to ascertain the position of the diaphragm.

The operator should not omit a single part, or his testimony may be impugned, either as a medical witness, if he reports the case, or as a legal one, and this omitted part might be assumed as the seat of the cause of death.

Protect the hands, before making the internal examination, with oil and soap. This diminishes the probability of absorption of matter, but has the disadvantage of rendering the holding of instruments more difficult.<sup>2</sup>

<sup>1</sup> During the fifth or sixth month the testicle descends to the iliac fossa; seventh month enters the inguinal canal; at end of eighth month passes into the scrotum.

<sup>2</sup> At the outset of the internal examination, it may be well, for the sake of reference, that the practitioner should be reminded of the

#### *Average Weight of the Various Organs.\**

	Male.	Female.
Brain . . . . .	49½ oz. avoird.	44 oz. avoird.
Cerebrum . . . . .	43 oz. 15 dr.	38 oz. 12 dr.
Cerebellum . . . . .	5 oz. 4 dr.	4 oz. 12½ dr.
Pons and medulla oblongata . . . . .	15½ dr.	1 oz. ½ dr.
Spinal cord . . . . .	1 oz. 4 dr.	1 oz. 4 dr.
Heart . . . . .	11 oz.	9 oz.
Lungs . . . . .	right, 24 oz. left, 21 oz.	right, 17 oz. left, 15 oz.

\* Tabulated from Quain and Sharpey's Anatomy, in Heath's Manual of Minor Surgery, etc.; Phila. 1875, p. 288.

*Incisions.*—Short quick cuts are not to be made in autopsies, as in ordinary dissections, as they are tedious and cause too much division of the larger organs; while free incisions, possibly involving the whole of the organ, save time and give increased insight and clearness. The knife-handle should be grasped in the palm, the blade appearing as a direct prolongation of the arm when stretched, the cutting movements being made with the whole arm. The right arm must be free, and the elbow raised quite away from the trunk, so that the flexed forearm may be moved freely, and in any direction backwards or forwards, making it easy to divide the integuments of the trunk by a single long incision from the chin to the symphysis pubis, or to display the lung from apex to base in two halves. Incisions should not completely separate the portions of an organ, so that we may restore the connection of parts, in case re-examination be necessary.

*Order of Examination.*—The abdomen must be opened—but not dissected—before the thorax, to ascertain the position of the diaphragm and various organs, abnormal abdominal contents or adhesions, penetrating wounds, foreign bodies, color of exposed parts, etc. Note also how much fat is present in the subcutaneous areolar

	Male.	Female
Thyroid . . . . .	1 oz.	2 oz.
Liver . . . . .	53 oz.	45 oz.
Pancreas . . . . .	3 oz.	3 oz.
Spleen . . . . .	6 oz.	5 oz.
Kidney . . . . .	5½ oz.	5 oz.
Suprarenal capsule . . .	1-2 dr.	1-2 dr.
Prostate . . . . .	6 dr.	
Testis . . . . .	1 oz.	
Uterus (virgin) . . . .		7-12 dr.
Ovary . . . . .		1-1½ dr.



tissue. The position of the diaphragm is important for establishment of the respiration-test in the new-born. The thorax must be dissected first, lest by removal of the liver, stomach, etc., and division of the abdominal vessels, a collapsed and emptied condition of the right side of the heart may result. The stomach may, however, be at once removed in cases of suspected poisoning. If the thorax be opened first, and the anterior attachments of the diaphragm divided, the general and relative position of the abdominal viscera, thus displaced, and their relation to injuries of the abdominal walls, cannot be readily determined. Peritonitis might exist; it would be a nice point to determine whether it is due to traumatic causes or a pathological process in one of the abdominal viscera.

*Coloration and Condition of Vessels.*—It is a fallacy that arterial blood and arterial vessels are distinguishable by their deep-red or bright-red color, and that in a dead body arterial injection can be recognized by the color test. In the veins or plexuses formed by venous radicles, venous blood may absorb oxygen, and venous hyperæmia thus assume the appearance of arterial injection. The coloration, which has really occurred from exposure during the dissection, after opening the abdomen, for example, might be mistaken for inflammation or irritation. The color must be determined at the moment of opening the abdominal cavity, before the oxygen of the atmosphere has had time to affect it.

True capillary injection cannot be recognized by the naked eye; it is red tissue, not red capillaries, that is seen, and what is generally called hyperæmia is usually only veins. The venous or arterial character of a vessel cannot be determined by the quality of the blood contained in it, but by its structure, connections, and position; in puzzling cases the course of the vessel must be followed

to a point at which its size becomes a sufficient guide. Note the quantity of blood in a vessel, the kind of vessel, the degree of fulness (as profuse, slight, bloodless, etc.). Manipulation, as of the intestines, etc., diminishes the quantity of contained blood, and of gaseous, fluid, and solid matters.

#### EXAMINATION OF THE THORAX.

The reasons for opening—not dissecting—the abdomen before examining the thorax, are stated elsewhere (p. 317).

To open the thorax and abdomen, a free incision should be made from the chin to the pubes, along the middle of the sternum and down to that bone, through the skin to the umbilicus, passing around the latter. Then by deepening the incision from the lower portion of the sternum, open the peritoneal cavity for an inch or two, introduce the first and second fingers of the left hand, with which to hold up the abdominal wall, passing the knife between them, with its back to the intestines, and cutting through the whole thickness of the muscles at once down to the pubes. Then dissect off the skin and pectoral muscles from the sternum and costal cartilages.

The knife must be carried through the sterno-clavicular articulation on each side, by introducing it downwards and outwards at a point close to the inner end of the clavicle; then divide all the costal cartilages as close to their ribs as practicable, bearing in mind that the cartilage of the first rib is further from the median line. In older persons, the cartilages may be somewhat calcified. Lift up the inferior end of the sternum and divide the attachment of the diaphragm and the cellular tissue, and remove the sternum, with the pleura partially detached, exposing the lungs to view. In this operation, and while making the incision through the first rib and the articulation,

take care not to wound the large veins, and thus fill the pleural sacs with fluid or coagulated blood, rendering it impossible to determine their other contents.

We have not one thoracic cavity but two separate pleural sacs and pleural cavities, a pericardium and pericardial cavity. In opening the pleural sacs, note the position, color, etc., of their contents, amount and character of the fluid, presence of a foreign body, of adhesions, wounds, etc. Ascertain the existence of hæmatothorax, hydrothorax, and pleuritis, and leave the lungs and pericardium for subsequent observation.

The lungs should not be removed from the thorax before the heart has been examined, for the pulmonary artery and veins will be separated from them, and the left auricle, trunk of the pulmonary artery, and the right ventricle will be partially emptied.

**THE HEART.**—Open the pericardium by a vertical incision, examine its condition, amount of fluid, the appearance, position, size (atrophied or hypertrophied), shape, consistence (fatty, etc.) of the heart, amount of blood in the superficial vessels, and of fat in the sub-pericardial areolar tissue. Then open the heart *in situ*, to determine at first the quantity of blood in the cavities and the capacity of the auriculo-ventricular orifices, especially of the left side. Deaths from asphyxia and paralysis of the heart probably occur from overfilling, in the first case, of the right ventricle, in the second of the left. To determine the sufficiency or capacity of valves, all the parts belonging to the auriculo-ventricular valves, the chordæ tendinæ and muscoli papillares, must be retained in their integrity. As the base of the heart must be preserved, on account of the attachment on the two sides respectively of slips of the tricuspid and mitral valves, and as each auricle and ventricle must be examined separately, four distinct in-

cisions are necessary. In case it should not be expedient to remove the heart, a tolerably complete examination may be made according to the following brief directions:—

1. *To examine the right ventricle*, carry the incision from close to the base of the right border of the heart, deeply and forcibly into the interior of the ventricle, bringing the knife out towards the apex, without going down so far as to wound the septum. This incision is a guide for the three others, the place for each incision being found in a plane taking the direction of the first.

2. *To examine the right auricle*, commence the incision half way between the places of entrance of the venæ cavæ, and let it end close to the base. •

3. *To examine the left auricle*, the incision should commence at the left superior pulmonary vein, and end close to the base, as indicated by the prominent coronary vein. The coronary vessels should not be injured.

4. *To examine the left ventricle*, begin the incision close below the base, carry it deeply and forcibly through the wall of the heart, and let it end just short of the apex.

The heart is brought into proper position for *examination of the right side*, by pushing the firmly extended left forefinger under the organ, and keeping it against the base, so that the ventricular portion hangs down over the forefinger. Then turn the heart on its axis towards the left until the right border presents anteriorly, press the left thumb just behind this border at the base, and make, one after the other, both the incisions for the right side, as above described.

*To examine the left side*, draw the apex upwards and to the left, and place the heart encircled in the fingers of the left hand. By gentle pressure, make the posterior wall to bulge out a little, and withdraw itself from the septum.

Then make the incisions for the left side as above described.

After making the incisions in the right side, remove and examine the quality and quantity of blood from the right auricle; then insert the left index and middle fingers from the auricle through the tricuspid opening into the ventricle, and endeavor to open this latter cavity. Remove the blood from the right ventricle, determine it as before, and do the same on the left side. Do not examine the valves at this stage, as adhesions, coagula, etc., may be disturbed. The contracted condition of the left side of the heart must be borne in mind, but this contraction, with the rigor mortis, may be overcome by gentle pressure.

*To remove the heart*, introduce the left index finger into the left ventricle, and the thumb into the right, through the already existing incisions; raise up the apex, and with it the whole of the heart, and with three or four long, free, horizontal incisions, made not too close to the heart, divide the venæ cavæ, the pulmonary veins and artery, and the aorta, all together. After removal, examine the cut openings of the aorta and pulmonary artery, the size of these vessels, the thickness of their walls, and remove any and all coagula. Examine the capacity for closure of the arterial orifices by pouring water into the aorta and pulmonary artery, holding the heart freely suspended in the air, so that the orifices will not be closed or the walls compressed by pressure of the hand. The points of the fingers should be applied to the vessels to be examined, or externally near the base of the valves, so that the plane of the orifice shall be exactly horizontal, and not drawn to any side. To prevent dragging, stretching, or valvular closure, both hands must be used,

to support the heart properly, and the water must be poured in by a second person.

In examining the aortic orifice, apply the tips of the fingers closely around it on the right and left auricles and pulmonary artery; for if applied simply to the edges of the aortic opening, the parts may be stretched unequally, and besides we have to divide the aorta again at a distance of four or five centimetres above the orifice by an incision parallel to the plane of the aperture. If the coronary arteries were divided when the left side of the heart was first incised, the water poured in may escape through them. In the case of the pulmonary artery it is different, and to test the pulmonary orifice the heart can be suspended by fixing between the fingers the edges of the opening into the vessel.

*For thorough examination of the heart, after removal,* place it exactly in the position it occupied in life, on a board or table. The parts to be examined are the auriculo-ventricular valves, with their chordæ tendineæ and musculi papillares, the cavities themselves, their endocardium, the arterial valves, auriculo-ventricular septum, and muscular substance.

*For the right ventricle,* the incision is made in a straight line prolonged from the pulmonary artery, and near the base of the heart, with a long pair of scissors; one blade being inserted into the previous incision in the right border (p. 321), and carried towards the pulmonary artery, care being taken, by introducing the blade in front of the papillary muscle, and carrying the incision close to the base, not to cut through the muscle of the tricuspid valve with its chordæ tendineæ, which would interfere with the demonstration of the tricuspid valves.

*For the left ventricle,* the incision, with similar scissors, is in a straight line prolonged from the ascending aorta,

and close to the septum ventriculorum; commencing at the apex and dividing the anterior wall of the ventricle and of the aorta. Care must be taken not to divide the base of the mitral valve. Avoid cutting through the valves of the pulmonary artery by drawing that vessel to the right when making the incision, and by continuing this to the left, close to and behind the artery; not too far to the left, as the right border of the base of the mitral valve is inserted quite close to this spot, and this valve is connected immediately with the left border of the aortic orifice. If the incision goes only a few millimetres too much to the left, that portion of the mitral valve will be cut off which forms this junction, and the result will be an aperture in that valve when the divided portions of the heart are put in apposition. Externally this spot corresponds exactly with the right border of the base of the left auricle, and should be the guide, the incision being carried through midway between the pulmonary orifice and the left auricle.

This completes the examination of the heart—all of which can be done in ten minutes—unless it be desirable, in exceptional cases, to open the auricles by cutting through their wall with the scissors, between the openings of the *venæ cavæ* on the right, and of the pulmonary veins on the left side; or to make further incisions in the muscular substance or the coronary arteries.

**THE LUNGS.**—In examining the lungs we must take care not to injure the root, where the vessels, nerves, and excretory ducts occupy important relations, as it may be necessary to probe, dissect, inject, or use the blowpipe in the vessels or canals. As already stated, the lungs should not be removed until after the examination of the heart. Should it be desirable to remove the lungs and heart together, tie the trachea and vessels to

prevent the exit of blood and air. Then cut through the trachea, dissect it from the œsophagus, divide the great cervical vessels, and separate the heart from its remaining attachments to the diaphragm. We must examine whether the lungs float in water, whether they have breathed, and in adults, to see if there be consolidation, and also crepitation. If we cut the lungs in pieces, examine whether the pieces float. In opening the lung divide each lobe, by a perpendicular incision from above downwards, and from its thick border towards its inner (anterior, medial, sharp) border. Lay open the bronchial tubes, if necessary, by scissors introduced along the posterior wall of the trachea. Note any evidences of pneumonia, and examine the bronchial tubes, the parenchyma, bronchial glands, etc.

The larynx, tongue, etc., are sometimes removed with the lungs, and their condition examined, but not usually in private practice.

**THE LARYNX.**—Make an incision from the chin to the sternum, carefully dissecting back the skin, and then separate the floor of the mouth from the jaw, pulling the tongue down through the opening. Divide the pillars of the fauces, and the pharynx; and the tongue, pharynx and larynx may be brought down together, and, if necessary, separated from the lungs.

#### EXAMINATION OF THE ABDOMEN.

The usual *order of sequence* in the examination of the abdominal organs, except in special cases, should be as follows: The omentum; spleen; left kidney, suprarenal capsule, and ureter; the right ditto; the bladder, prostate gland, vesiculæ seminales, and urethra; the testicles, spermatic cord, and penis; or the vagina, uterus, Fallopian tubes, ovaries, etc.; the rectum; duodenum and intestinal



portion of the ductus communis; stomach; small omentum, gall-ducts, vena portæ, gall-bladder, and liver; pancreas and semilunar ganglia; mesentery, with its glands, vessels, etc.; small and large intestine; retro-peritoneal lymphatic glands, receptaculum chyli, aorta, and vena cava inferior.

In regard to some of these organs no special directions are necessary, as they are removed without trouble or simultaneously with others of greater importance.

The mode of opening the abdomen has been already described (p. 319).

**THE SPLEEN.**—This organ may be divided by a single long cut from above downward, over the middle of its outer or convex surface. The same precautions as to wounding the hilus are necessary as in the examination of the lungs (p. 324). Note the size, color, and appearance of the capsule and parenchyma.

The **URINARY ORGANS** should be examined in the following order: The kidneys, ureters, bladder, and urethra. The suprarenal capsules and generative organs will be examined in connection with them.

**Kidneys.**—Remove the organ with the suprarenal capsule, and take away the fat. Note the size, consistence, external appearances, etc. In opening the kidney, make a single cut from the external to the internal border; and examine the cortical and medullary substances, the pelvis of the kidney (for renal calculi), and if fatty degeneration be suspected make a microscopic examination. In removing the organ, divide the lumbar peritoneum, and draw the kidney forward, dividing the vessels and ureter. Label the organs, right and left, to distinguish them.

If deemed necessary, examine also the *Suprarenal capsule* and *Ureters*.

**The Bladder.**—This organ is not usually removed.

Note whether it is distended, the thickness of the walls, appearance of the mucous membrane, etc. In medico-legal cases, draw off the water, and put it in a clean jar. The bladder may be removed alone, or with the *rectum*, *uterus*, and *ovaries*; in the latter case, by dividing all the structures on the floor of the pelvis close to the levator ani muscle.

If the *urethra* is to be removed with the bladder, a portion of the pubes may be divided, and by proper incisions, and division of the penis, the latter, the urethra and bladder can be removed together.

The *prostate gland* and *vesiculæ seminales* may also be examined.

**THE TESTICLE.**—To open this organ, make a single incision in a perpendicular direction from its free to its attached border, the parts being then forcibly separated.

The *spermatic cord* and *penis* may also be examined at this time.

**THE UTERUS.**—In private practice, this organ is not usually removed—unless absolutely necessary—on account of the vagina offering an outlet for the escape of fluids. If it should be removed, the vagina must afterwards be closed up. Note the size, position, consistence, etc., of the organ, and the appearance of the mucous membrane.

The *VAGINA*, *FALLOPIAN TUBES*, *OVARIES*, *RECTUM*, etc., may also be examined in this connection.

**THE DUODENUM, LIVER, GALL-BLADDER, ETC.**—The order of sequence at this stage should be as follows: first open the duodenum *in situ*, determine its contents above and below the papilla biliaris, which should be gently squeezed; and by pressure on the gall-bladder determine the presence of obstacles to the flow of bile and the presence of gall-stones. Slit up the ductus com-

munis choledochus, examine the vena cava, and remove the liver, taking care not to wound the right supra-renal capsule. Examine the external surface of the liver, make sections of it, and note the appearance of the acini, veins, and ducts. The hepatic may be distinguished from the portal vein by the pad of cellular tissue around the latter, in which run the artery and duct. The ligaments should be divided and the liver should be removed as the last stage but one of the abdominal examination. To remove it at an earlier period would be to wound the large veins and the diaphragm, the small omentum, the vena portæ, gall-duct, etc., besides interfering with the detection of obliterations of the vena portæ, defects in the perviousness of the ductus communis choledochus and of the cystic and hepatic ducts. If the thorax has already been opened, a portion of the diaphragm may be removed with the liver. The vena cava must be divided above and below, but the blood from it may interfere with any further abdominal dissection. Next open the gall-bladder and examine its contents.

**THE STOMACH.**—This organ may be opened *in situ* at the same time as the duodenum, by continuing the incision, except in cases of suspected poisoning. The spleen may be readily separated from it.

In a medico legal case requiring removal of the stomach and its contents, tie the œsophagus and divide it above the ligature, before removing the lungs, etc. Then tie the duodenum and remove the stomach. Cut one of the ligatures and pour the contents carefully into a clean glass jar. Take all possible care by labelling and locking them up to see that no mistake is made as to the right jar and that they cannot be tampered with. They should never be allowed to go out of the physician's possession except personally into the hands of a chemist. Open the

stomach by carrying a pair of scissors along the lesser curvature. Note the thickness of the walls, their condition, and the appearance of the mucous membrane, taking care not to misinterpret the rugæ.

THE PANCREAS AND SEMILUNAR GLANDS should next be examined. Any change in size, consistence, etc., should be noted; after which the *mesentery*, with its glands, vessels, etc., should receive the operator's attention.

THE INTESTINES.—These should be examined last, as, even with the greatest care, the operator, the instruments and receptacles, the subject, and the table are liable to be soiled. If there be valid reason for haste, they can be removed without injury to the other parts, except in the case of the duodenum, its removal being impossible without cutting through the excretory ducts of the liver and pancreas which open into it, and even wounding a portion of the pancreas.

If the intestines must be removed, place two ligatures at the commencement of the jejunum and the rectum and divide the bowel between them. Separate the large intestine throughout from its attachments, turn it over to the right side; do the same with the small intestines, and, taking the mesentery in the left hand, isolate them from their connections. Open them on the side that is attached to the mesentery.

In examining the intestines, note the state of the walls, the condition of the mucous membrane, particularly as regards inflammation, ulceration (how deep), perforation, the appearance of Peyer's patches, the mesenteric glands, etc.

The examination of the *retro-peritoneal lymphatic glands*, *receptaculum chyli*, *aorta*, and *vena cava inferior*, will complete the abdominal investigation.

**EXAMINATION OF THE CRANIUM.**

This examination is usually postponed until after that of the thorax and abdomen, but if it be especially important to examine the head, it is better to do so at once, as the division of the large vessels of the heart might change the appearance of the brain. The head being properly raised, and the hair parted across the vertex from ear to ear, an incision should be made down to the bone in the same direction—never across the forehead; the scalp being drawn forward over the brow and backward over the occiput. The knife is then passed all around the skull, through the temporal muscle, the line passing about an inch above the orbit, and half an inch above the occipital protuberance, and as high in the temporal fossæ as the shape of the head will admit. The operator should then saw the skull, standing to the left of the body, with the heel of the saw on the *os frontis*, and with a few firm and light movements cutting through the outer table, and continuing the cut backwards. The sawing must be thoroughly done at three points; the occiput and the anterior extremities of the temporal ridges on the frontal bone. The *dura mater* and brain must not be wounded.

The above is the usual method; but a better one, since it retains the calvaria perfectly in place without wires or other means, is to make the above horizontal cut from the forehead backward stopping at about an inch behind the ears; from this point on each side saw straight to the middle line to a point an inch higher than the level of the horizontal cut. If these cuts are bevelled at the expense of the inner table, additional security from displacement will be given. The scalp alone will retain the calvaria in place, and the forehead will not show the least evidence of mutilation.

The chisel and mallet may be used in hospital examination to penetrate the inner table. In medico-legal examinations, do not use a hammer in such cases make no violent efforts to remove the skullcap, lest any fracture may be attributed to the violence. Examine the calvaria, and in medico-legal cases take off the periosteum in order to detect any fissured fractures. These may be made clear by ink, which will be absorbed into the fissure and cannot be wiped off.

As a rule, the exposed parts—dura mater, great longitudinal sinus, pia mater, surface of the cerebral hemispheres—must be first examined and described in succession; unless the dura mater should be adherent to the skullcap, requiring division before forcibly detaching the latter, and the removal of the skullcap with the dura mater adherent to it. Otherwise the parts may become crushed and injured, and accurate examination be rendered impossible. In new-born and young children these parts are usually adherent.

Having examined the membranes externally, they may be opened as follows: The dura mater, by passing the knife around the cut edge of the skull, the falx being exposed when the membrane is raised; the falx can then be detached from its connection with the ethmoid bone, and the tentorium, and removed, thus exposing the brain. Before disturbing the falx, however, open and examine the longitudinal sinus. Note the amount of cerebro-spinal fluid.

**THE BRAIN.**—In the brain the incisions should be even and smooth, to avoid crushing, and always through the hemispheres, from within to without, so that the brain can be readily put together again, notwithstanding the number of cuts made in the internal parts. Make each successive incision across the middle of the existing cut sur-

face, and divide again and again each new half. This is not practicable with the large cerebral ganglia. The velum interpositum comes in contact with only a small streak, the stria or lamina cornea, and must be stripped off before commencing the dissection of these ganglia; the latter should be divided by fan-shaped radial incisions, whose common starting-point is the peduncle of the cerebrum, so that the relation of parts may be preserved.

After examining the membranes, a lateral ventricle should be at once opened partially as follows: Bearing in mind that between the middle portions (*cellæ mediæ*) of the lateral ventricles, there is only the very thin septum lucidum to form a partition-wall, and that it is exactly under the raphe of the corpus callosum, we make a lateral incision, at a distance of a millimetre from this raphe perpendicularly into the corpus callosum, coming directly into a *cella media* at a depth of two or three millimetres, the incision forming a right angle with the plane of the centrum semi-ovale. To open the anterior and posterior cornua of this ventricle, incisions must be made anteriorly or posteriorly, not vertically but horizontally—the anterior one higher, the posterior one deeper—in the anterior and posterior lobes of the brain. To remove anything from the ventricles, use only a small stream of water.

Having determined the contents of the lateral ventricles, the state of their walls and venous plexus, and the condition of the septum, the latter is taken hold of with the left hand close behind the foramen of *Monro*, the knife pushed in front of the fingers through this aperture, and the corpus callosum cut through obliquely, upwards and forwards, and then all these parts (*corpus callosum*, *septum lucidum*, and *fornix*) are carefully detached from the velum interpositum and its choroid plexus, and the vessels and tissue of the latter examined. Then passing

the handle of the scalpel from the front under the velum, so as to detach it from the pineal body and corpora quadrigemina, we learn the condition of the latter, and expose the third ventricle. With a long perpendicular incision divide the corpora quadrigemina and the cerebellum as far as the aqueduct of Sylvius and the fourth ventricle.

It may be necessary to make, both in the brain and spinal cord, a large number of cuts, even microscopic sections, to be sure that nothing has been overlooked. The fewer the abnormal changes, the greater the number of sections needed.

*To Remove the Brain.*—Lift up the anterior cerebral lobes and the first pair of nerves, divide the second pair, and internal carotid arteries, the third pair, the tentorium cerebelli,—the knife for this latter purpose being carried along the superior border of the petrous portion of the temporal bone,—dividing the fourth pair, and the others in regular order. The medulla oblongata and vertebral arteries are separated by passing the knife through the foramen magnum.

The arachnoid and pia mater of the base and sides of the brain, the lateral sinuses, and the fifth nerve with the ganglion of Gasser should next be examined.

**THE ORBIT.**—This cavity may be examined after removal of the brain, by carrying the saw through the os frontis, at the internal and external angles of the orbit, using the chisel to continue the cuts through the roof, and then tilting forward the portion of bone embraced in the section.

*The Optic Nerve.*—The posterior half of the eyeball can be readily removed, by a pair of scissors, without any disfigurement of the face, in order to examine the



condition of the optic nerve. It should be placed at once in Müller's fluid.<sup>1</sup>

#### EXAMINATION OF THE SPINAL CORD.

Make a longitudinal incision in the median line, and a dissection of the muscles laterally; then saw through the laminæ of the vertebræ. A double saw saves time. A chisel or a rachitome and hammer may also be used. Examine the spinal cord *in situ*. Note the amount of the cerebro-spinal fluid. If expedient to remove the spinal cord, note especially at what vertebra it is cut off, and remove the roots of the nerves along with it. Carry the knife outside of the dura mater, to cut through the nerves at the side, and the cauda equina below. Open the sheath and examine the cord itself on the surface, by sections, and by the microscope.

Transverse incisions must be made on the spinal cord, leaving the pia mater attached on the anterior and posterior surface, according as the incision has been made from the one or the other aspect. Müller's fluid may be used for the preservation of parts for examination, and these should be labelled.

*To Conclude the Post-mortem Examination.*—Remove all fluids from the cavities; replace the viscera; place some rags in the head to absorb the fluids; stuff the vagina or rectum, if either has been opened; fill in with bran wherever necessary, being especially careful to fill the pelvis, if this has been made necessary by the removal of its contents; replace the sternum, stitching it if it has been altogether removed; sew up the incisions; arrange

<sup>1</sup> Bichromate of potassium, gr. xxxv; sulphate of sodium, gr. xv; distilled water, ℥ij.

the hair naturally; wash the body, and put everything in as good order as practicable, restoring the body as nearly as possible to its condition previous to the examination. The calvaria may be fastened by brass pins inserted into the diploë at each temple and at the occiput, to keep it in position, or by pieces of copper wire passed and twisted through holes drilled in each temporal fossa, and corresponding holes in the calvaria. In closing up the abdomen and thorax, sew from below, entering on the under surface of the skin, and at regular intervals.

The operator should be particular to cleanse his hands thoroughly with cold water, using a nail-brush, after which he must immerse them in some disinfecting solution, finishing his ablution with a little Cologne water. In case of wounds being received during post-mortem examination, he should wash the hands at once, suck the wound, and apply plaster until after the operation is over, then use water dressings. There is more danger from unseen cuts, of which the operator is hardly conscious, than from free incisions.

## ADDENDUM.

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### ADDITIONAL NEW REMEDIES.

SEVERAL articles of recent introduction, whose therapeutic properties, in some instances, are not thoroughly established, may be briefly enumerated, with the doses of each in grains and grammes. A few of them were accidentally omitted from the table of remedies previously given. (See p. 79.)

	Grains.	Grammes.
Bismuth, citrate of . . . . .	ij-iv	.13- .26
Caffein, citrate of . . . . .	i-ij	.06- .13
“ valerianate of . . . . .	i-ij	.06- .13
Calcium, bromide of . . . . .	x-xl	.65- 2.6
Cerium, nitrate of . . . . .	i-ij	.06- .13
Cinchonia, citrate of . . . . .	ij-iv	.13- .26
Grindelia robusta . . . . .	xx-xxx	1.3 --2.0
Lithium, benzoate of . . . . .	iiij-v	.2 - .3
“ bromide of . . . . .	v-xx	.3 - 1.3
Malt, extract of . . . . .	f3ij-iv	10 0 -20.0
Morphia, valerianate of . . . . .	½-½	.01- .02
Pancreatin . . . . .	iiij-v	.2 - .3
Phosphorated oil . . . . .	gtt. v-x	.4 - .8
Potassium, benzoate of . . . . .	ij-iv	.13- .26
Quinia, carbolate of . . . . .	i-ij	.06- .13
“ citrate of . . . . .	i-ij	.06- .13
“ phosphate of . . . . .	i-ij	.06- .13
“ salicylate of . . . . .	i-ij	.06- .13
“ sulphocarbolate of . . . . .	i-iiij	.06- .2
Strychnia, phosphate of . . . . .	½	.002
Sumbul, extract of . . . . .	i-ij	.06- .13
Zinc, phosphide of . . . . .	½	.002

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